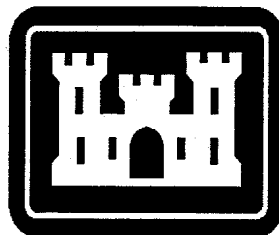


FLOOD CONTROL
GRAND FORKS, NORTH DAKOTA

**SPECIFICATIONS
FOR**

ENGLISH COULEE DIVERSION

JANUARY 2001



**US Army Corps
of Engineers**
St. Paul District

**Flood Control
Grand Forks, North Dakota**

English Coulee Diversion

Table of Contents

DIVISION 00 - Bidding Requirements, Contract Forms and Conditions of the Contract

00010	Standard Form 1442 and Bidding Schedule
00100	Instructions, Conditions, and Notices to Bidders
00600	Representations, Certifications, and Other Statements to Bidders
00700	Contract Clauses
00800	Special Contract Requirements
00830	Attachments

DIVISION 01 - General Requirements

01000	General
01270	Measurement and Payment
01320	Project Schedule
01330	Submittal Procedures
01410	Environmental Protection
01451	Contractor Quality Control
01500	Temporary Construction Facilities
01568	North Dakota Pollutant Discharge Elimination System

DIVISION 02 - Site Work

02220	Demolition
02230	Clearing and Grubbing
02300	Earthwork
02315	Excavation, Filling and Backfilling for Structures
02316	Excavation, Trenching and Backfilling for Utilities and Storm-Drainage Systems
02388	Stone Protection (Riprap)
02456	Steel H-Piles
02464	Metal Sheet Piling
02630	Storm-Drainage System
02720	Temporary Bypass and Traffic Control
02722	Aggregate Base Course or Surface Course
02741	Hot-Mix Asphalt for Roads
02754	Concrete Pavement
02760	Field Molded Sealants for Sealing Joints in Rigid Pavements
02763	Pavement Markings
02821	Fencing
02920	Seeding, Sodding, and Topsoil

DIVISION 03 - Concrete

- 03100 Structural Concrete Formwork
- 03150 Expansion Joints, Contraction Joints, and Waterstops
- 03200 Concrete Reinforcement
- 03300 Cast-in-Place Structural Concrete
- 03500 Special Culvert Design

DIVISION 04 - Not Used**DIVISION 05 - Metals**

- 05055 Metalwork Fabrication, Machine Work, Miscellaneous Provisions
- 05502 Metals: Miscellaneous, Standard Articles, Shop Fabricated Items
- 05615 Stoplogs

DIVISION 06-08 - Not Used**DIVISION 09 - Finishes**

- 09900 Painting, General

DIVISION 10 - Specialties

- 10430 Exterior Signage

DIVISION 11 - Equipment

- 11280 Water Control Gates

DIVISION 12-16 - Not Used

SOLICITATION, OFFER, AND AWARD <i>(Construction, Alteration, or Repair)</i>		1. SOLICITATION NO. DACW37-00-B-0020	2. TYPE OF SOLICITATION <input checked="checked" type="checkbox"/> SEALED BID (IFB) <input type="checkbox"/> NEGOTIATED (RFP)	3. DATE ISSUED 10-Apr-2001	PAGE OF PAGES 1 OF 164
IMPORTANT - The "offer" section on the reverse must be fully completed by offeror.					
4. CONTRACT NO.		5. REQUISITION/PURCHASE REQUEST NO. W81G67-0224-9705		6. PROJECT NO. English Coulee Diver	
7. ISSUED BY CONTRACTING DIVISION USACE - ST PAUL 190 5TH STREET ST PAUL MN 55101-1638 TEL: FAX: 651-290-5706		CODE DACW37	8. ADDRESS OFFER TO <i>(If Other Than Item 7)</i> CODE <div style="text-align: center; padding: 20px;"> See Item 7 </div>		
9. FOR INFORMATION CALL:		A. NAME FREDERICK J MITCHELL		B. TELEPHONE NO. <i>(Include area code)</i> <i>(NO COLLECT CALLS)</i> 651-290-5763	
SOLICITATION					
NOTE: In sealed bid solicitations "offer" and "offeror" mean "bid" and "bidder".					
10. THE GOVERNMENT REQUIRES PERFORMANCE OF THE WORK DESCRIBED IN THESE DOCUMENTS <i>(Title, identifying no., date):</i> DACW37-00-B-0020 ENGLISH COULEE DIVERSION, GRAND FORKS FLOOD CONTROL PROJECT, GRAND FORKS, NORTH DAKOTA. Principles features of the work include all plant, labor, materials, and supplies required for the construction of approximately 4 1/2 miles of channel, the expansion of an additional 5 miles of existing channel, the reconstruction of 7 miles of gravel roadway, 4000 feet of highway road raise, traffic control and bypass for Hwy 2, I-29, Hwy 81, Demers Avenue., and 32nd Avenue South, the construction of 11 multi-cell reinforced concrete cast-in-place box culverts, 3 concrete drop structures, 17 RCP culverts with flap gates, and 11 CMP culverts. Work includes, but is not limited to, approximately 1,200,000 cubic yards of channel excavation, and 800,000 cubic yards of levee construction. THIS PROCUREMENT IS ISSUE UNRESTRICTED UNDER THE SMALL BUSINESS DEMONSTRATION PROGRAM (PUBLIC LAW 100-656). The North American Industrial Classification Systems Code (NAICS) is 234990 with a Small Business Size Standard of \$27.5 million. The estimated magnitude of construction in terms of physical characteristics and estimated price range is more than \$10 million.					
11. The Contractor shall begin performance within <u> 10 </u> calendar days and complete it within <u> 660 </u> calendar days after receiving <input type="checkbox"/> award, <input checked="checked" type="checkbox"/> notice to proceed. This performance period is <input checked="checked" type="checkbox"/> mandatory, <input type="checkbox"/> negotiable. (See <u>Section 00700</u> .)					
12 A. THE CONTRACTOR MUST FURNISH ANY REQUIRED PERFORMANCE AND PAYMENT BONDS? <i>(If "YES," indicate within how many calendar days after award in Item 12B.)</i> <input checked="checked" type="checkbox"/> YES <input type="checkbox"/> NO				12B. CALENDAR DAYS 10	
13. ADDITIONAL SOLICITATION REQUIREMENTS: A. Sealed offers in original and <u> 0 </u> copies to perform the work required are due at the place specified in Item 8 by <u> 14:00:00 </u> (hour) local time <u> 5/10/01 </u> (date). If this is a sealed bid solicitation, offers must be publicly opened at that time. Sealed envelopes containing offers shall be marked to show the offeror's name and address, the solicitation number, and the date and time offers are due. B. An offer guarantee <input checked="checked" type="checkbox"/> is, <input type="checkbox"/> is not required. C. All offers are subject to the (1) work requirements, and (2) other provisions and clauses incorporated in the solicitation in full text or by reference. D. Offers providing less than <u> 60 </u> calendar days for Government acceptance after the date offers are due will not be considered and will be rejected.					

SOLICITATION, OFFER, AND AWARD (Continued) <i>(Construction, Alteration, or Repair)</i>										
OFFER (Must be fully completed by offeror)										
14. NAME AND ADDRESS OF OFFEROR <i>(Include ZIP Code)</i>					15. TELEPHONE NO. <i>(Include area code)</i>					
CODE					16. REMITTANCE ADDRESS <i>(Include only if different than Item 14)</i>					
					See Item 14					
FACILITY CODE										
17. The offeror agrees to perform the work required at the prices specified below in strict accordance with the terms of this solicitation, if this offer is accepted by the Government in writing within _____ calendar days after the date offers are due. <i>(Insert any number equal to or greater than the minimum requirements stated in Item 13D. Failure to insert any number means the offeror accepts the minimum in Item 13D.)</i>										
AMOUNTS		SEE SCHEDULE OF PRICES								
18. The offeror agrees to furnish any required performance and payment bonds.										
19. ACKNOWLEDGMENT OF AMENDMENTS <i>(The offeror acknowledges receipt of amendments to the solicitation -- give number and date of each)</i>										
AMENDMENT NO.										
DATE										
20A. NAME AND TITLE OF PERSON AUTHORIZED TO SIGN OFFER <i>(Type or print)</i>					20B. SIGNATURE				20C. OFFER DATE	
AWARD (To be completed by Government)										
21. ITEMS ACCEPTED: <div style="font-size: 24pt; font-weight: bold; margin-top: 10px;">SEE SCHEDULE</div>										
22. AMOUNT		23. ACCOUNTING AND APPROPRIATION DATA								
24. SUBMIT INVOICES TO ADDRESS SHOWN IN <i>(4 copies unless otherwise specified)</i>				ITEM	25. OTHER THAN FULL AND OPEN COMPETITION PURSUANT TO <input type="checkbox"/> 10 U.S.C. 2304(c) <input type="checkbox"/> 41 U.S.C. 253(c)					
26. ADMINISTERED BY			CODE		27. PAYMENT WILL BE MADE BY			CODE		
<div style="height: 100px;"></div>					<div style="height: 100px;"></div>					
CONTRACTING OFFICER WILL COMPLETE ITEM 28 OR 29 AS APPLICABLE										
<input type="checkbox"/> 28. NEGOTIATED AGREEMENT <i>(Contractor is required to sign this document and return _____ copies to issuing office.)</i> Contractor agrees to furnish and deliver all items or perform all work, requisitions identified on this form and any continuation sheets for the consideration stated in this contract. The rights and obligations of the parties to this contract shall be governed by (a) this contract award, (b) the solicitation, and (c) the clauses, representations, certifications, and specifications or incorporated by reference in or attached to this contract.					<input type="checkbox"/> 29. AWARD <i>(Contractor is not required to sign this document.)</i> Your offer on this solicitation, is hereby accepted as to the items listed. This award consummates the contract, which consists of (a) the Government solicitation and your offer, and (b) this contract award. No further contractual document is necessary.					
30A. NAME AND TITLE OF CONTRACTOR OR PERSON AUTHORIZED TO SIGN <i>(Type or print)</i>					31A. NAME OF CONTRACTING OFFICER <i>(Type or print)</i>					
30B. SIGNATURE			30C. DATE		31B. UNITED STATES OF AMERICA BY				31C. AWARD DATE	
<div style="height: 100px;"></div>			<div style="height: 100px;"></div>		<div style="height: 100px;"></div>				<div style="height: 100px;"></div>	

TABLE OF CONTENTS – SECTIONS 00010 THROUGH 00800

SECTION 00010 SOLICITATION CONTRACT FORM.....	7
OPTION ITEMS	24
SECTION 00100 BIDDING SCHEDULE/INSTRUCTIONS TO BIDDERS	29
52.204-6 DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER (JUN 99)	29
52.209-4001 BIDDER'S QUALIFICATIONS (APR 1984) FAR 9.105-1	29
52.214-1 SOLICITATION DEFINITIONS--SEALED BIDDING (JUL 1987)	30
52.214-3 AMENDMENTS TO INVITATIONS FOR BIDS (DEC 1989)	30
52.214-4 FALSE STATEMENTS IN BIDS (APR 1984)	30
52.214-5 SUBMISSION OF BIDS (MAR 1997)	30
52.214-6 EXPLANATION TO PROSPECTIVE BIDDERS (APR 1984)	31
52.214-7 LATE SUBMISSIONS, MODIFICATIONS, AND WITHDRAWALS OF BIDS (NOV 1999)	31
52.214-12 PREPARATION OF BIDS (APR 1984)	32
52.214-18 PREPARATION OF BIDS--CONSTRUCTION (APR 1984)	32
52.214-19 CONTRACT AWARD--SEALED BIDDING--CONSTRUCTION (AUG 1996)	33
52.214-34 SUBMISSION OF OFFERS IN THE ENGLISH LANGUAGE (APR 1991)	33
52.214-35 SUBMISSION OF OFFERS IN U.S. CURRENCY (APR 1991)	33
52.214-4001 INQUIRIES - BID INFORMATION	33
52.214-4002 ALL OR NONE QUALIFICATIONS (APR 1984) FAR 14.404-5	34
52.217-5 EVALUATION OF OPTIONS (JUL 1990)	34
52.225-12 NOTICE OF BUY AMERICAN ACT REQUIREMENT-- CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (FEB 2000)	35
52.232-38 SUBMISSION OF ELECTRONIC FUNDS TRANSFER INFORMATION WITH OFFER (MAY 1999)	36
52.233-2 SERVICE OF PROTEST (AUG 1996)	37
52.236-27 SITE VISIT (CONSTRUCTION) (FEB 1995)	37
52.236-4002 WORK PERFORMED BY THE CONTRACTOR	38
52.236-4005 UNAVAILABILITY OF UTILITY SERVICES	38
SECTION 00600 REPRESENTATIONS & CERTIFICATIONS	39
52.203-2 CERTIFICATE OF INDEPENDENT PRICE DETERMINATION (APR 1985)	39
52.203-11 CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (APR 1991)	39
52.204-5 WOMEN-OWNED BUSINESS (OTHER THAN SMALL BUSINESS) (MAY 1999)	40
52.209-5 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS (JAN 2001)	40
52.214-30 ANNUAL REPRESENTATIONS AND CERTIFICATIONS--SEALED BIDDING (JAN 1997) ..	42
52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (OCT 2000) ALTERNATE I (OCT 2000) & ALTERNATE II (OCT 2000)	42
52.219-2 EQUAL LOW BIDS. (OCT 1995)	44
52.219-4 NOTICE OF PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS (JAN 1999)	44
52.222-22 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (FEB 1999)	46
52.223-13 CERTIFICATION OF TOXIC CHEMICAL RELEASE REPORTING (OCT 2000)	46
252.209-7001 DISCLOSURE OF OWNERSHIP OR CONTROL BY THE GOVERNMENT OF A TERRORIST COUNTRY (MAR 1998)	47
252.225-7017 PROHIBITION ON AWARD TO COMPANIES OWNED BY THE PEOPLE'S REPUBLIC OF CHINA (FEB 2000)	48

252.227-7028	TECHNICAL DATA OR COMPUTER SOFTWARE PREVIOUSLY DELIVERED TO THE GOVERNMENT (JUN 1995)	48
252.247-7022	REPRESENTATION OF EXTENT OF TRANSPORTATION BY SEA (AUG 1992).....	48
SECTION 00700 CONTRACT CLAUSES		50
52.202-1	DEFINITIONS (OCT 1995) --ALTERNATE I (APR 1984).....	50
52.202-4001	DEFINITIONS (MAY 1995) EFARS PART 2.101.....	50
52.203-3	GRATUITIES (APR 1984)	51
52.203-5	COVENANT AGAINST CONTINGENT FEES (APR 1984).....	52
52.203-7	ANTI-KICKBACK PROCEDURES. (JUL 1995)	52
52.203-8	CANCELLATION, RESCISSION, AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997)	53
52.203-10	PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997).....	54
52.203-12	LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (JUN 1997)	55
52.204-4	PRINTING/COPYING DOUBLE-SIDED ON RECYCLED PAPER (AUG 2000)	59
52.209-6	PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT (JUL 1995)	60
52.211-10	COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984) - ALTERNATE I (APR 1984).....	60
52.211-12	LIQUIDATED DAMAGES--CONSTRUCTION (APR 1984)	61
52.211-18	VARIATION IN ESTIMATED QUANTITY (APR 1984)	61
52.212-5000	EVALUATION OF SUBDIVIDED ITEMS (MAR 1995)--EFARS	61
52.212-5001	VARIATIONS IN ESTIMATED QUANTITIES, SUBDIVIDED ITEMS	61
52.214-26	AUDIT AND RECORDS--SEALED BIDDING. (OCT 1997)	62
52.214-27	PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA - MODIFICATIONS - SEALED BIDDING. (OCT 1997)	63
52.214-28	SUBCONTRACTOR COST OR PRICING DATA - MODIFICATIONS - SEALED BIDDING. (OCT 1997)	64
52.217-5	EVALUATION OF OPTIONS (JUL 1990).....	65
52.217-4000	OPTION FOR ADDITIONAL WORK (CONSTRUCTION) (AUG 2000).....	65
52.219-4	NOTICE OF PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS (JAN 1999)	66
52.219-8	UTILIZATION OF SMALL BUSINESS CONCERNS (OCT 2000).....	67
52.219-9	SMALL BUSINESS SUBCONTRACTING PLAN (OCT 2000) ALTERNATE I (OCT 2000)	68
52.219-16	LIQUIDATED DAMAGES-SUBCONTRACTING PLAN (JAN 1999).....	73
52.222-1	NOTICE TO THE GOVERNMENT OF LABOR DISPUTES (FEB 1997)	73
52.222-3	CONVICT LABOR (AUG 1996)	74
52.222-4	CONTRACT WORK HOURS AND SAFETY STANDARDS ACT - OVERTIME COMPENSATION. (SEP 2000).....	74
52.222-6	DAVIS-BACON ACT (FEB 1995).....	75
52.222-7	WITHHOLDING OF FUNDS (FEB 1988)	76
52.222-8	PAYROLLS AND BASIC RECORDS (FEB 1988)	77
52.222-9	APPRENTICES AND TRAINEES (FEB 1988).....	78
52.222-10	COMPLIANCE WITH COPELAND ACT REQUIREMENTS (FEB 1988)	79
52.222-11	SUBCONTRACTS (LABOR STANDARDS (FEB 1988).....	79
52.222-12	CONTRACT TERMINATION--DEBARMENT (FEB 1988).....	79
52.222-13	COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REGULATIONS (FEB 1988)....	79
52.222-14	DISPUTES CONCERNING LABOR STANDARDS (FEB 1988)	80
52.222-15	CERTIFICATION OF ELIGIBILITY (FEB 1988)	80
52.222-21	PROHIBITION OF SEGREGATED FACILITIES (FEB 1999)	80
52.222-23	NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999)	81
52.222-26	EQUAL OPPORTUNITY (FEB 1999).....	82

52.222-27	AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION (FEB 1999).....	83
52.222-35	AFFIRMATIVE ACTION FOR DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA (APR 1998).....	87
52.222-36	AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES (JUN 1998).....	89
52.222-37	EMPLOYMENT REPORTS ON DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA (JAN 1999)	90
52.223-6	DRUG-FREE WORKPLACE (JAN 1997)	90
52.223-14	TOXIC CHEMICAL RELEASE REPORTING (OCT 2000)	92
52.225-11	BUY AMERICAN ACT--BALANCE OF PAYMENTS PROGRAM--CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (FEB 2000)	93
52.225-13	RESTRICTIONS ON CERTAIN FOREIGN PURCHASES (JUL 2000)	96
52.226-1	UTILIZATION OF INDIAN ORGANIZATIONS AND INDIAN-OWNED ECONOMIC ENTERPRISES (JUN 2000)	96
52.227-1	AUTHORIZATION AND CONSENT (JUL 1995)	98
52.227-2	NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT (AUG 1996).....	98
52.227-4	PATENT INDEMNITY--CONSTRUCTION CONTRACTS (APR 1984)	98
52.228-1	BID GUARANTEE (SEP 1996).....	99
52.228-11	PLEDGES OF ASSETS (FEB 1992)	99
52.228-14	IRREVOCABLE LETTER OF CREDIT (DEC 1999)	100
52.228-15	PERFORMANCE AND PAYMENT BONDS--CONSTRUCTION (JUL 2000)-.....	103
52.229-3	FEDERAL, STATE, AND LOCAL TAXES (JAN 1991)	104
52.229-5	TAXES --CONTRACTS PERFORMED IN U.S. POSSESSIONS OR PUERTO RICO (APR 1984)	105
52.232-5	PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS (MAY 1997).....	105
52.232-17	INTEREST (JUNE 1996).....	107
52.232-23	ASSIGNMENT OF CLAIMS (JAN 1986) - ALTERNATE I (APR 1984).....	108
52.232-27	PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS (JUN 1997)	108
52.232-33	PAYMENT BY ELECTRONIC FUNDS TRANSFER--CENTRAL CONTRACTOR REGISTRATION (MAY 1999).....	115
52.233-1	DISPUTES. (DEC 1998)	117
52.233-3	PROTEST AFTER AWARD (AUG. 1996).....	118
52.236-1	PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984)	119
52.236-2	DIFFERING SITE CONDITIONS (APR 1984).....	119
52.236-3	SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK (APR 1984)	120
52.236-5	MATERIAL AND WORKMANSHIP (APR 1984).....	120
52.236-6	SUPERINTENDENCE BY THE CONTRACTOR (APR 1984).....	121
52.236-7	PERMITS AND RESPONSIBILITIES (NOV 1991)	121
52.236-8	OTHER CONTRACTS (APR 1984).....	121
52.236-9	PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS (APR 1984).....	122
52.236-10	OPERATIONS AND STORAGE AREAS (APR 1984).....	122
52.236-11	USE AND POSSESSION PRIOR TO COMPLETION (APR 1984)	122
52.236-12	CLEANING UP (APR 1984)	123
52.236-13	ACCIDENT PREVENTION (NOV 1991) -- ALTERNATE I (NOV 1991)	123
52.236-15	SCHEDULES FOR CONSTRUCTION CONTRACTS (APR 1984)	124
52.236-16	QUANTITY SURVEYS (APR 1984).....	124
52.236-17	LAYOUT OF WORK (APR 1984).....	125
52.236-21	SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FEB 1997).....	125
52.236-26	PRECONSTRUCTION CONFERENCE (FEB 1995).....	126
52.242-13	BANKRUPTCY (JUL 1995)	126
52.242-14	SUSPENSION OF WORK (APR 1984)	127
52.243-4	CHANGES (AUG 1987).....	127

52.244-6	SUBCONTRACTS FOR COMMERCIAL ITEMS AND COMMERCIAL COMPONENTS (OCT 1998)	128
52.246-12	INSPECTION OF CONSTRUCTION (AUG 1996)	128
52.246-21	WARRANTY OF CONSTRUCTION (MAR 1994)	129
52.247-34	F.O.B. DESTINATION (NOV 1991)	130
52.248-3	VALUE ENGINEERING--CONSTRUCTION (FEB 2000)	131
52.249-2	TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (SEP 1996) - ALTERNATE I (SEP 1996).....	134
52.249-10	DEFAULT (FIXED-PRICE CONSTRUCTION) (APR 1984)	137
52.253-1	COMPUTER GENERATED FORMS (JAN 1991)	138
252.201-7000	CONTRACTING OFFICER'S REPRESENTATIVE (DEC 1991)	139
252.203-7001	PROHIBITION ON PERSONS CONVICTED OF FRAUD OR OTHER DEFENSE- CONTRACT-RELATED FELONIES (MAR 1999)	139
252.203-7002	DISPLAY OF DOD HOTLINE POSTER (DEC 1991).....	140
252.204-7003	CONTROL OF GOVERNMENT PERSONNEL WORK PRODUCT (APR 1992)	141
252.204-7004	REQUIRED CENTRAL CONTRACTOR REGISTRATION.(MAR 2000)	141
252.205-7000	PROVISION OF INFORMATION TO COOPERATIVE AGREEMENT HOLDERS (DEC 1991)	142
252.209-7000	ACQUISITION FROM SUBCONTRACTORS SUBJECT TO ONSITE INSPECTION UNDER THE INTERMEDIATE-RANGE NUCLEAR FORCES (INF) TREATY (NOV 1995)	142
252.209-7003	COMPLIANCE WITH VETERANS' EMPLOYMENT REPORTING REQUIREMENTS (MAR 1998)	143
252.209-7004	SUBCONTRACTING WITH FIRMS THAT ARE OWNED OR CONTROLLED BY THE GOVERNMENT OF A TERRORIST COUNTRY (MAR 1998)	143
252.219-7003	SMALL, SMALL DISADVANTAGED AND WOMEN-OWNED SMALL BUSINESS SUBCONTRACTING PLAN (DOD CONTRACTS) (APR. 1996)	143
252.223-7006	PROHIBITION ON STORAGE AND DISPOSAL OF TOXIC AND HAZARDOUS	144
252.225-7012	PREFERENCE FOR CERTAIN DOMESTIC COMMODITIES (AUG 2000)	144
252.225-7031	SECONDARY ARAB BOYCOTT OF ISRAEL (JUN 1992)	146
252.227-7015	TECHNICAL DATA--COMMERCIAL ITEMS. (NOV 1995).....	146
252.227-7027	DEFERRED ORDERING OF TECHNICAL DATA OR COMPUTER SOFTWARE.....	147
252.227-7033	RIGHTS IN SHOP DRAWINGS (APR 1966).....	147
252.227-7037	VALIDATION OF RESTRICTIVE MARKINGS ON TECHNICAL DATA. (SEP 199).....	148
252.231-7000	SUPPLEMENTAL COST PRINCIPLES (DEC 1991)	151
252.236-7000	MODIFICATION PROPOSALS - PRICE BREAKDOWN. (DEC 1991).....	151
252.236-7001	CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (AUG 2000).....	152
252.236-7008	CONTRACT PRICES - BIDDING SCHEDULES. (DEC 1991)	152
252.242-7000	POSTAWARD CONFERENCE (DEC 1991).....	153
252.243-7001	PRICING OF CONTRACT MODIFICATIONS (DEC 1991).....	153
252.243-7002	REQUESTS FOR EQUITABLE ADJUSTMENT (MAR 1998)	153
252.244-7000	SUBCONTRACTS FOR COMMERCIAL ITEMS AND COMMERCIAL COMPONENTS (DOD) (MAR 2000).....	154
252.225-7014	PREFERENCE FOR DOMESTIC SPECIALTY METALS, ALTERNATE I (10 U.S.C. 2241 NOTE).....	154
252.247-7023	TRANSPORTATION OF SUPPLIES BY SEA (10 U.S.C. 2631).....	154
252.247-7024	NOTIFICATION OF TRANSPORTATION OF SUPPLIES BY SEA (10 U.S.C. 2631).....	154
252.246-7000	MATERIAL INSPECTION AND RECEIVING REPORT (DEC 1991)	154
252.247-7023	TRANSPORTATION OF SUPPLIES BY SEA (MAR 2000)	154
252.247-7024	NOTIFICATION OF TRANSPORTATION OF SUPPLIES BY SEA (MAR 2000).....	157
252.248-7000	PREPARATION OF VALUE ENGINEERING CHANGE PROPOSALS (MAY 1994)	158
SECTION 00800 SPECIAL CONTRACT REQUIREMENTS		159
52.000-4004	PARTNERING.....	159
52.212-4003	TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (OCT 1989) ER 415-1-15 159	
52.228-4003	RAILROAD PROTECTIVE LIABILITY INSURANCE.....	160

52.228-4022	REQUIREMENT FOR BID GUARANTEE (FAR 28.101-2).....	160
52.231-5000	EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE	160
52.232-4004	INVOICE PROCEDURES	161
52.236-4014	PURCHASE ORDERS	162
52.239-4001	YEAR 2000 COMPLIANCE (FAR 39.106) (JUL 1998)	163
52.246-4001	LABORATORY AND TESTING FACILITIES	163
52.249-5000	BASIS FOR SETTLEMENT OF PROPOSALS	163

SECTION 00010 Solicitation Contract Form

BASIC ITEMS

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0001	Demolition FFP PURCHASE REQUEST NUMBER W81G67-0224-9705	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0002	Structure 1 - 3 Drop Structures FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0003	Structure 2 - Box Culvert (Special Design/Build) FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0004	Structure 3 - Box Culvert FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0005	Structure 5 - Box Culvert FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0006	Structure 7 - Box Culvert (Special Design/Build) FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0007	Structure 9 - Box Culvert (Special Design/Build) FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0008	Structure 10 - Box Culvert FFP	1.00	Lump Sum	_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0009	Structure 11 - Box Culvert FFP	1.00	Lump Sum	_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0010	Structure 12 - Box Culvert (Special Design/Build) FFP	1.00	Lump Sum	_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0011	Structure 13 - Diversion Structure FFP	1.00	Lump Sum	_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0012	Structure 14 - Box Culvert (Special Design/Build) FFP	1.00	Lump Sum		

_____.	_____.
--------	--------

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0013	Structure 15 - Box Culvert (Special Design/Build) FFP	1.00	Lump Sum		

_____.	_____.
--------	--------

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0014	Structure 17 - Box Culvert (Special Design/Build) FFP	1.00	Lump Sum		

_____.	_____.
--------	--------

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0015	Existing Structure 4 Cleanout and Seepage Cutoff FFP	1.00	Lump Sum		

_____.	_____.
--------	--------

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0016	Existing Structure 6 Cleanout FFP	1.00	Lump Sum	_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0017	Existing Structure 8 Cleanout FFP	1.00	Lump Sum	_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0018	Cleanout Railroad Bridge near Structure 11 FFP	1.00	Lump Sum	_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0019	Fencing FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0020	Common Excavation FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0020AA	First 1,000,000 Cubic Yards FFP	1,000,000.00	Cubic Yard		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0020AB	Over 1,000,000 Cubic Yards FFP	300,000.00	Cubic Yard		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0021	Compacted Fill FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0021AA	First 50,000 Cubic Yards FFP	50,000.00	Cubic Yard		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0021AB	Over 50,000 Cubic Yards FFP	10,000.00	Cubic Yard		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0022	Semi Compacted Fill FFP				
0022AA	First 120,000 Cubic Yards FFP	120,000.00	Cubic Yard		
				_____.	_____.
0022AB	Over 120,000 Cubic Yards FFP	21,300.00	Cubic Yard		
				_____.	_____.
0023	Reach between Station 0+00 and 16+46 FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0023AA	Clearing and Grubbing FFP	1.00	Lump Sum		

				_____.	_____.
--	--	--	--	--------	--------

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0023AB	Stripping FFP	1.00	Lump Sum		

				_____.	_____.
--	--	--	--	--------	--------

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0023AC	Topsoil and Seed FFP	1.00	Lump Sum		

				_____.	_____.
--	--	--	--	--------	--------

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0023AD	Interior Drainage - 1 Culvert FFP	1.00	Lump Sum		

				_____.	_____.
--	--	--	--	--------	--------

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0024	Reach between Station 16+46 and 122+75 FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0024AA	Clearing and Grubbing FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0024AB	Stripping FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0024AC	Topsoil and Seed FFP	1.00	Lump Sum		

_____.	_____.
--------	--------

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0024AD	Road Relocation - Gravel FFP - TWSP Road between Structures #2 and #4	1.00	Lump Sum		

_____.	_____.
--------	--------

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0024AE	Interior Drainage - 15 Culverts and Ditches FFP	1.00	Lump Sum		

_____.	_____.
--------	--------

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0025	Reach between Station 122+75 and 201+00 FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0025AA	Clearing & Grubbing FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0025AB	Stripping FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0025AC	Topsoil & Seed FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0025AD	Road Relocation - Gravel, 55th Street FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0025AE	Interior Drainage - 10 Culverts and Ditches FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0026	Reach between Station 201+00 and 251+96 FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0026AA	Clearing & Grubbing FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0026AB	Stripping FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0026AC	Topsoil & Seed FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0026AD	Interior Drainage - 2 Culverts & Ditches FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0027	Reach between Station 251+96 and 501+95 FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0027AA	Clearing & Grubbing FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0027AB	Stripping FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0027AC	Topsoil & Seed FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0027AD	Interior Drainage - 15 Culverts FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0028	Roadways FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0028AA	US Highway 81, approx. 1' raise - Station 36+38 FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0028AB	Interstate 29, approx. 3' raise - Station 83+05 FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0028AC	Township Road, approx. 2' raise - Station 175+52 FFP	1.00	Lump Sum		
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0028AD	Access Road, approx. 2' raise - Station 198+92 FFP	1.00	Lump Sum	_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0028AE	69th St., approx. 1/2' to 1-1/2' raise - FFP - Station 317+00 to 491+ 60	1.00	Lump Sum	_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0028AF	47th Avenue, approx. 1/2' raise FFP - Station 491 + 60 to 501 + 95		Lump Sum	_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0029	All Bond Costs (Bid, Performance and Payment) FFP - See Bid Note regarding Bid Bond - Bid Bond is to include all option items.	1.00	Lump Sum	_____.	_____.

TOTAL AMOUNT
(Basic Items) \$ _____.

OPTION ITEMS

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0030	Haul to Landfill and Stockpile FFP				

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0030AA		37,920.00	Cubic Yard		
	Material between Station 203+00 and 250-00 FFP - Section 36, Haul Excess Excavation				

_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0030AB		73,840.00	Cubic Yard		
	Material between Station 252+00 and 277+00 FFP - Section 36, Haul Excess Excavation				

_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0030AC		138,800.00	Cubic Yard		
	Material between Station 281+00 and 331+00 FFP - Section 1, Haul Excess Excavation				
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0030AD		23,600.00	Cubic Yard		
	Material between Station 334+00 and 385+00 FFP - Section 12, Haul Excess Excavation				
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0030AE		2,400.00	Cubic Yard		
	Material between Station 493+00 and 501+00 FFP - Section 26, Haul Excess Excavation				
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0031		1.00	Lump Sum		
	Bonds-Perfromance and Payment for CLIN 0030 FFP				
				_____.	_____.

ITEM NO	SUPPLIES/SERVICES	QUANTITY	UNIT	UNIT PRICE	AMOUNT
0032	Est. 1/2' to 1-1/2' raise and west side ditching FFP - 69th Street - Station 280+50 to 317+00	1.00	Lump Sum		
				_____.	_____.

TOTAL AMOUNT
(Options Items) \$_____.

TOTAL AMOUNT
(Basic and Option Items) \$_____.

BID SCHEDULE NOTES

1. EFFECTIVE MAY 31, 1998, ALL CONTRACTORS MUST REGISTER WITH THE DEFENSE CENTRAL CONTRACTOR REGISTRATION (ccr) IN ORDER TO RECEIVE ANY CONTRACT AWARD. (other than those made via the Government credit card program). Contractors may register on line at <http://ccr.edi.disa.mil>.
2. FACSIMILE OF BIDS/PROPOSALS AND FACSIMILE OF MODIFICATIONS THERETO, WILL NOT BE ACCEPTED.
3. All Quantities are estimated except where unit is given as "EA" (EACH) or "LS" (LUMP SUM).
4. NOTICE TO LARGE BUSINESS: The U.S. Army Corps of Engineers, St. Paul District, is committed to participation of Small Business, Small Disadvantaged Business and Women-Owned Small Business in the performance of work under this solicitation and resultant contract.

Your attention is directed to the solicitation clauses 52.219-0008 entitled "Utilization of Small, Small Disadvantaged and Women-Owned Small Business Concerns", 52.219-0009 I entitled "Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan," and 52.219-7003 entitled "Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan (DOD Contracts)".

If you are a large business and the apparent low bidder with a bid exceeding \$1,000,000, submission of a Subcontracting Plan in accordance with above clauses will be required. The Contracting Officer will review the plan using the following goals to assure that it represents your best efforts to maximize subcontracting opportunities. Award will not be made until the Subcontracting Plan is approved by the Contracting Officer.

The following subcontracting goals are informational only and not legally binding but are considered reasonable and achievable during the resultant contract from this solicitation. The goals expressed in percent of total planned subcontracting dollars are:

Small Business	61.4%
Small Disadvantaged Business	9.1%
Women-Owned Small Business	5.0%
HUBZone Small Business	Maximum Percent (%) Practicable
Veteran-owned Small Business	3.0%
Subcontract Reporting (SF 294 & SF 295)	100.0%

5. The apparent low bidder will be requested to provide the following information as soon as possible after bid opening:

- a. A Financial Statement, to include a balance sheet and income statement, and
- b. A Bank Certification of Financial Capability (line of credit).

This information will be treated as confidential. The financial statements should be not over 60 days old. If over 60 days old, a certification should be attached stating that the financial condition of the firm is substantially the same or, if not the same, the changes that have taken place.

6. All extensions of the unit prices shown will be subject to verification by the Government. In case of a discrepancy between the unit price and the extension, the unit price will govern.

7. The original bid/proposal and any modifications must be complete as to all the items on the schedule. Award will be made to that bidder whose bid is most advantageous to the Government, based on price and the price related factors included in the solicitation.

8. Unbalanced Bids. The government may reject as nonresponsive any bid that is materially unbalanced between contract line item numbers or sub-items on the bidding schedule. A bid is materially unbalanced when it is based on prices which are significantly less than cost for some work and prices which are overstated, in relation to cost, for other work. A materially unbalanced bid may be rejected if the Contracting Officer has a reasonable doubt as to whether the bid will result in the lowest overall cost to the government even though it may be the low evaluated bid. Additionally, a bid that is so unbalanced so as to be tantamount to an advance payment will be rejected as nonresponsive even if acceptance of the bid would result in the lowest overall cost to the government.

9. Any prospective bidder desiring an explanation or interpretation of the solicitation, drawings, specifications, etc., must request it in writing in accordance with Section 00100, Contract Clause "Explanation To Prospective Bidders", not later than 10 days prior to bid opening. Questions can be faxed to (651)290-5706, attention to F. Mitchell.

10. Funding for this contract is contingent upon the conditions stated in Section 00800, Clause No. 52.232-5001, Continuing Contracts.

11. The addresses, phone numbers, and internet addresses (if available) for references cited in these specifications are listed in the Corps of Engineer Guide Specification (CEGS) 01090 SOURCES FOR REFERENCE PUBLICATIONS. CEGS 01090 is available on the TECHNIFO page of the Corps of Engineers Huntsville District internet site at: <http://w2.hnd.usace.army.mil/>.

12. Bid Bonds

ACCEPTABILITY OF POWER OF ATTORNEY ACCOMPANYING BID BOND

Bid bonds on their face must unequivocally bind the bonding company or the bid shall be nonresponsive.

The Contracting Officer has authority to decide whether there is adequate evidence of authority to unequivocally bind the bonding company. Evidence of intent to be bound may not be submitted after bid opening. Therefore, in order for a power of attorney accompanying a bid bond to be acceptable, it must be (i) an original (not facsimile) power of attorney, (ii) a copy of a power of attorney (or power of attorney with facsimile signatures) accompanied by an original (not facsimile) signature by the secretary of the company certifying that the power of attorney remains in full force and effect and has not been revoked, or (iii) a copy of a power of attorney with facsimile signatures which indicates on its face that the surety intends to be bound by facsimile signatures AND has a RAISED corporate seal.

13. The Government has contracted to dig test pits at three locations along the diversion alignment. The test pits are scheduled for Tuesday, May 1, 2001. Bidders who are interested in observing the operation should meet at 8:30 am at the intersection of Gateway Drive and 55th Street in Grand Forks. Point of contact is Mr. Craig Johnson at 701-772-8292 or Mr. Grant Riddick at 651-290-5599.

SECTION 00100 Bidding Schedule/Instructions to Bidders

CLAUSES INCORPORATED BY FULL TEXT

52.204-6 DATA UNIVERSAL NUMBERING SYSTEM (DUNS) NUMBER (JUN 99)

(a) Contractor identification is essential for complying with statutory contract reporting requirements. Therefore, the offeror is requested to enter, in the block with its name and address on the Standard Form 33 or similar document, the annotation "DUNS" followed by the DUNS number which identifies the offeror's name and address exactly as stated in the offer.

(b) If the offeror does not have a DUNS number, it should contact Dun and Bradstreet directly to obtain one. A DUNS number will be provided immediately by telephone at no charge to the offeror. For information on obtaining a DUNS number, the offeror, if located within the United States, should call Dun and Bradstreet at 1-800-333-0505. The offeror should be prepared to provide the following information:

- (1) Company name.
- (2) Company address.
- (3) Company telephone number.
- (4) Line of business.
- (5) Chief executive officer/key manager.
- (6) Date the company was started.
- (7) Number of people employed by the company.
- (8) Company affiliation.

(c) Offerors located outside the United States may obtain the location and phone number of the local Dun and Bradstreet Information Services office from the Internet Home Page at <http://www.customerservice@dnb.com/>. If an offeror is unable to locate a local service center, it may send an e-mail to Dun and Bradstreet at globalinfo@dnb.com.

(End of provision)

52.209-4001 BIDDER'S QUALIFICATIONS (APR 1984) FAR 9.105-1

Before a bid is considered for award, the bidder may be requested by the Government to submit a statement regarding his previous experience in performing comparable work, his business and technical organization, financial resources, and plant available to be used in performing the work.

52.214-1 SOLICITATION DEFINITIONS--SEALED BIDDING (JUL 1987)

"Government" means United States Government.

"Offer" means "bid" in sealed bidding.

"Solicitation" means an invitation for bids in sealed bidding.

(End of provision)

52.214-3 AMENDMENTS TO INVITATIONS FOR BIDS (DEC 1989)

(a) If this solicitation is amended, then all terms and conditions which are not modified remain unchanged.

(b) Bidders shall acknowledge receipt of any amendment to this solicitation (1) by signing and returning the amendment, (2) by identifying the amendment number and date in the space provided for this purpose on the form for submitting a bid, (3) by letter or telegram, or (4) by facsimile, if facsimile bids are authorized in the solicitation. The Government must receive the acknowledgment by the time and at the place specified for receipt of bids.

(End of provision)

52.214-4 FALSE STATEMENTS IN BIDS (APR 1984)

Bidders must provide full, accurate, and complete information as required by this solicitation and its attachments. The penalty for making false statements in bids is prescribed in 18 U.S.C. 1001.

(End of provision)

52.214-5 SUBMISSION OF BIDS (MAR 1997)

(a) Bids and bid modifications shall be submitted in sealed envelopes or packages (unless submitted by electronic means) (1) addressed to the office specified in the solicitation, and (2) showing the time and date specified for receipt, the solicitation number, and the name and address of the bidder.

(b) Bidders using commercial carrier services shall ensure that the bid is addressed and marked on the outermost envelope or wrapper as prescribed in subparagraphs (a)(1) and (2) of this provision when delivered to the office specified in the solicitation.

(c) Telegraphic bids will not be considered unless authorized by the solicitation; however, bids may be modified or withdrawn by written or telegraphic notice.

(d) Facsimile bids, modifications, or withdrawals, will not be considered unless authorized by the solicitation.

(e) Bids submitted by electronic commerce shall be considered only if the electronic commerce method was specifically stipulated or permitted by the solicitation.

52.214-6 EXPLANATION TO PROSPECTIVE BIDDERS (APR 1984)

Any prospective bidder desiring an explanation or interpretation of the solicitation, drawings, specifications, etc., must request it in writing soon enough to allow a reply to reach all prospective bidders before the submission of their bids. Oral explanations or instructions given before the award of a contract will not be binding. Any information given a prospective bidder concerning a solicitation will be furnished promptly to all other prospective bidders as an amendment to the solicitation, if that information is necessary in submitting bids or if the lack of it would be prejudicial to other prospective bidders.

(End of provision)

52.214-7 LATE SUBMISSIONS, MODIFICATIONS, AND WITHDRAWALS OF BIDS (NOV 1999)

(a) Bidders are responsible for submitting bids, and any modifications or withdrawals, so as to reach the Government office designated in the invitation for bids (IFB) by the time specified in the IFB. If no time is specified in the IFB, the time for receipt is 4:30 p.m., local time, for the designated Government office on the date that bids are due.

(b)(1) Any bid, modification, or withdrawal received at the Government office designated in the IFB after the exact time specified for receipt of bids is "late" and will not be considered unless it is received before award is made, the Contracting Officer determines that accepting the late bid would not unduly delay the acquisition; and--

(i) If it was transmitted through an electronic commerce method authorized by the IFB, it was received at the initial point of entry to the Government infrastructure not later than 5:00 p.m. one working day prior to the date specified for receipt of bids; or

(ii) There is acceptable evidence to establish that it was received at the Government installation designated for receipt of bids and was under the Government's control prior to the time set for receipt of bids.

(2) However, a late modification of an otherwise successful bid that makes its terms more favorable to the Government, will be considered at any time it is received and may be accepted.

(c) Acceptable evidence to establish the time of receipt at the Government installation includes the time/date stamp of that installation on the bid wrapper, other documentary evidence of receipt maintained by the installation, or oral testimony or statements of Government personnel.

(d) If an emergency or unanticipated event interrupts normal Government processes so that bids cannot be received at the Government office designated for receipt of bids by the exact time specified in the IFB and urgent Government requirements preclude amendment of the IFB, the time specified for receipt of bids will be deemed to be extended to the same time of day specified in the solicitation on the first work day on which normal Government processes resume.

(e) Bids may be withdrawn by written notice received at any time before the exact time set for receipt of bids. If the IFB authorizes facsimile bids, bids may be withdrawn via facsimile received at any time before the exact time set for receipt of bids, subject to the conditions specified in the provision at 52.214-31, Facsimile Bids. A bid may be

withdrawn in person by a bidder or its authorized representative if, before the exact time set for receipt of bids, the identity of the person requesting withdrawal is established and the person signs a receipt for the bid.

(End of provision)

52.214-12 PREPARATION OF BIDS (APR 1984)

(a) Bidders are expected to examine the drawings, specifications, Schedule, and all instructions. Failure to do so will be at the bidder's risk.

(b) Each bidder shall furnish the information required by the solicitation. The bidder shall sign the bid and print or type its name on the Schedule and each continuation sheet on which it makes an entry. Erasures or other changes must be initialed by the person signing the bid. Bids signed by an agent shall be accompanied by evidence of that agent's authority, unless that evidence has been previously furnished to the issuing office.

(c) For each item offered, bidders shall (1) show the unit price, including, unless otherwise specified, packaging, packing, and preservation and (2) enter the extended price for the quantity of each item offered in the "Amount" column of the Schedule. In case of discrepancy between a unit price and an extended price, the unit price will be presumed to be correct, subject, however, to correction to the same extent and in the same manner as any other mistake.

(d) Bids for supplies or services other than those specified will not be considered unless authorized by the solicitation.

(e) Bidders must state a definite time for delivery of supplies or for performance of services, unless otherwise specified in the solicitation.

(f) Time, if stated as a number of days, will include Saturdays, Sundays, and holidays.

(End of provision)

52.214-18 PREPARATION OF BIDS--CONSTRUCTION (APR 1984)

(a) Bids must be (1) submitted on the forms furnished by the Government or on copies of those forms, and (2) manually signed. The person signing a bid must initial each erasure or change appearing on any bid form.

(b) The bid form may require bidders to submit bid prices for one or more items on various bases, including--

(1) Lump sum bidding;

(2) Alternate prices;

(3) Units of construction; or

(4) Any combination of subparagraphs (1) through (3) above.

(c) If the solicitation requires bidding on all items, failure to do so will disqualify the bid. If bidding on all items is not required, bidders should insert the words "no bid" in the space provided for any item on which no price is submitted.

(d) Alternate bids will not be considered unless this solicitation authorizes their submission.

52.214-19 CONTRACT AWARD--SEALED BIDDING--CONSTRUCTION (AUG 1996)

(a) The Government will evaluate bids in response to this solicitation without discussions and will award a contract to the responsible bidder whose bid, conforming to the solicitation, will be most advantageous to the Government, considering only price and the price-related factors specified elsewhere in the solicitation.

(b) The Government may reject any or all bids, and waive informalities or minor irregularities in bids received.

(c) The Government may accept any item or combination of items, unless doing so is precluded by a restrictive limitation in the solicitation or the bid.

(d) The Government may reject a bid as nonresponsive if the prices bid are materially unbalanced between line items or subline items. A bid is materially unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated in relation to cost for other work, and if there is a reasonable doubt that the bid will result in the lowest overall cost to the Government even though it may be the low evaluated bid, or if it is so unbalanced as to be tantamount to allowing an advance payment.

52.214-34 SUBMISSION OF OFFERS IN THE ENGLISH LANGUAGE (APR 1991)

Offers submitted in response to this solicitation shall be in the English language. Offers received in other than English shall be rejected.

(End of provision)

52.214-35 SUBMISSION OF OFFERS IN U.S. CURRENCY (APR 1991)

Offers submitted in response to this solicitation shall be in terms of U.S. dollars. Offers received in other than U.S. dollars shall be rejected.

(End of provision)

52.214-4001 INQUIRIES - BID INFORMATION

(a) Inquiries:

Any questions regarding this solicitation should be directed to, F.J. Mitchell, Contract Specialist, at telephone number (651) 290-5763 (collect calls not accepted). It is requested that all technical questions on the plans and specifications be submitted to the Contract Specialist by facsimile transmission to (651) 290-5706.

The Planholder's List and bid results can be found on the St. Paul District web site at <http://www.mvp.usace.army.mil> (click on "Contracts", then "Bid Solicitations").

(b) Bid Depository/Bid Opening Information:

Bids must be deposited prior to the date and time set for opening of bids. The bid depository is located in the Contracting Division, 6th Floor, of the St. Paul District, Corps of Engineers Centre, 190 Fifth Street East, St. Paul, Minnesota 55101-1638. A public bid opening will be held at the same location.

52.214-4002 ALL OR NONE QUALIFICATIONS (APR 1984) FAR 14.404-5

A bidder/offeror must quote on all items in this solicitation to be eligible for award. The Government will award on a "All or None" basis. Evaluation of bids/offers will be based, among other factors, upon the total price quoted for all items.

52.217-5 EVALUATION OF OPTIONS (JUL 1990)

(a) Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

(b) The Government may reject an offer as nonresponsive if it is materially unbalanced as to prices for the basic requirement and the option quantities. An offer is unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(End of provision)

**52.219-4004 SMALL BUSINESS SIZE STANDARD FOR CONSTRUCTION AND SPECIAL TRADES
(FAR 19.101 & 19.102)**

Annual receipts of a concern which has been in business for 3 or more complete fiscal years means the annual average gross revenue of the concern taken for the last 3 fiscal years. Annual receipts of a concern that has been in business for less than 3 complete fiscal years means its total receipts for the period it has been in business, divided by the number of weeks including fractions of a week that it has been in business, and multiplied by 52.

SIC	DESCRIPTION	SIZE STANDARDS
		IN MILLIONS
		OF DOLLARS
		Final Rule
DIVISION C - CONSTRUCTION		
MAJOR GROUP 15 - BUILDING CONSTRUCTION - GENERAL CONTRACTORS AND OPERATIVE BUILDERS		
1521 - General Contractors - Single-Family House		\$17
1522 - General Contractors - Residential Buildings, Other Than Single-Family		17
1531 - Operative Builders		17
1541 - General Contractors - Industrial Buildings and Warehouses		17
1542 - General Contractors - Nonresidential Buildings and Warehouses		17

**MAJOR GROUP 16 - CONSTRUCTION OTHER THAN BUILDING
CONSTRUCTION - GENERAL CONTRACTORS**

1611 - Highway and Street Construction, Except Elevated Highways	\$17
1622 - Bridge, Tunnel, and Elevated Highway Construction	17
1623 - Water, Sewer, Pipe Line, Communication and Power Line Construction	17
1629 - Heavy Construction, Except Dredging, N.E.C. (Not Elsewhere Covered)	17
1629 - Dredging and Surface Cleanup Activities	(1)\$13.5

MAJOR GROUP 17 - CONSTRUCTION - SPECIAL TRADE CONTRACTORS

1711 - Plumbing, heating (except electric), and air-conditioning	\$7
1721 - Painting, paperhanging, and decorating	7
1731 - Electrical work	7
1741 - Masonry, stone setting, and other stonework	7
1742 - Plastering, drywall, acoustical and insulation work	7
1743 - Terrazzo, tile, marble, and mosaic work	7
1751 - Carpentering	7
1752 - Floor laying and other floorwork, N.E.C.	7
1761 - Roofing and sheet metal work	7
1771 - Concrete work	7
1781 - Water well drilling	7
1791 - Structural steel erection	7
1793 - Glass and glazing work	7
1794 - Excavating and foundation work	7
1795 - Wrecking and demolition work	7
1796 - Installation or erection of building equipment, N.E.C.	7
1799 - Special trade contractors, N.E.C.	7
x1 - Base House Maintenance	(2) \$7

(1) To be considered small, a firm must perform the dredging of at least 40 percent of the yardage with its own dredging equipment or equipment owned by another small dredging concern.

(2) If one of the activities in base maintenance, as defined in SIC - 7369, can be identified with a separate industry, and that activity (or industry) accounts for 50 percent or more of the value of an entire contract, then the proper size standard shall be that for the particular industry, and not the base maintenance size standard.

"Base maintenance" constitutes three or more separate activities. These activities may be either service or special trade construction related activities. As services, these activities must each be in a separate industry. These activities may include but are not limited to such separate maintenance activities as Janitorial and Custodial Service, Protective Guard Service, Commissary Service, Fire Prevention Service, the Safety Engineering Service, Messenger Service, and Grounds Maintenance and Landscaping Service. If the contract involves the use of special trade contractors (plumbing, painting, plastering, carpeting, etc.) all such specialized special trade construction activities will be considered a single activity, which is Base Housing Maintenance. This is only one activity of base maintenance and two additional activities must be present for the contract to be considered base maintenance. The size standard for Base Housing Maintenance is \$7 million, the same size standard as for Special Trade Contractors.

**52.225-12 NOTICE OF BUY AMERICAN ACT REQUIREMENT-- CONSTRUCTION MATERIALS
UNDER TRADE AGREEMENTS (FEB 2000)**

(a) Definitions. Construction material, designated country construction material, domestic construction material, foreign construction material, and NAFTA country construction material, as used in this provision, are defined in the clause of this solicitation entitled "Buy American Act--Balance of Payments Program--Construction Materials under Trade Agreements" (Federal Acquisition Regulation (FAR) clause 52.225-11).

(b) Requests for determination of inapplicability. An offeror requesting a determination regarding the inapplicability of the Buy American Act or Balance of Payments Program should submit the request to the Contracting Officer in time to allow a determination before submission of offers. The offeror shall include the information and applicable supporting data required by paragraphs (c) and (d) of FAR clause 52.225-11 in the request. If an offeror has not requested a determination regarding the inapplicability of the Buy American Act or Balance of Payments Program before submitting its offer, or has not received a response to a previous request, the offeror shall include the information and supporting data in the offer.

(c) Evaluation of offers. (1) The Government will evaluate an offer requesting exception to the requirements of the Buy American Act or Balance of Payments Program, based on claimed unreasonable cost of domestic construction materials, by adding to the offered price the appropriate percentage of the cost of such foreign construction material, as specified in paragraph (b)(4)(i) of FAR clause 52.225-11.

(2) If evaluation results in a tie between an offeror that requested the substitution of foreign construction material based on unreasonable cost and an offeror that did not request an exception, the Contracting Officer will award to the offeror that did not request an exception based on unreasonable cost.

(d) Alternate offers. (1) When an offer includes foreign construction material, other than designated country or NAFTA country construction material, that is not listed by the Government in this solicitation in paragraph (b)(3) of FAR clause 52.225-11, the offeror also may submit an alternate offer based on use of equivalent domestic, designated country, or NAFTA country construction material.

(2) If an alternate offer is submitted, the offeror shall submit a separate Standard Form 1442 for the alternate offer, and a separate price comparison table prepared in accordance with paragraphs (c) and (d) of FAR clause 52.225-11 for the offer that is based on the use of any foreign construction material for which the Government has not yet determined an exception applies.

(3) If the Government determines that a particular exception requested in accordance with paragraph (c) of FAR clause 52.225-11 does not apply, the Government will evaluate only those offers based on use of the equivalent domestic, designated country, or NAFTA country construction material, and the offeror shall be required to furnish such domestic, designated country, or NAFTA country construction material. An offer based on use of the foreign construction material for which an exception was requested--

(i) Will be rejected as nonresponsive if this acquisition is conducted by sealed bidding; or

(ii) May be accepted if revised during negotiations.

(End of provision)

52.232-38 SUBMISSION OF ELECTRONIC FUNDS TRANSFER INFORMATION WITH OFFER (MAY 1999)

The offeror shall provide, with its offer, the following information that is required to make payment by electronic funds transfer (EFT) under any contract that results from this solicitation. This submission satisfies the requirement to provide EFT information under paragraphs (b)(1) and (j) of the clause at 52.232-34, Payment by Electronic Funds Transfer--Other than Central Contractor Registration.

- (1) The solicitation number (or other procurement identification number).
 - (2) The offeror's name and remittance address, as stated in the offer.
 - (3) The signature (manual or electronic, as appropriate), title, and telephone number of the offeror's official authorized to provide this information.
 - (4) The name, address, and 9-digit Routing Transit Number of the offeror's financial agent.
 - (5) The offeror's account number and the type of account (checking, savings, or lockbox).
 - (6) If applicable, the Fedwire Transfer System telegraphic abbreviation of the offeror's financial agent.
 - (7) If applicable, the offeror shall also provide the name, address, telegraphic abbreviation, and 9-digit Routing Transit Number of the correspondent financial institution receiving the wire transfer payment if the offeror's financial agent is not directly on-line to the Fedwire and, therefore, not the receiver of the wire transfer payment.
- (End of provision)

52.233-2 SERVICE OF PROTEST (AUG 1996)

- (a) Protests, as defined in section 33.101 of the Federal Acquisition Regulation, that are filed directly with an agency, and copies of any protests that are filed with the General Accounting Office (GAO), shall be served on the Contracting Officer (addressed as follows) by obtaining written and dated acknowledgment of receipt from

F.J. Mitchell, Contracting Officer
 Army Corps of Engineers
 St. Paul District
 190 Fifth Street East
 St. Paul, MN 55101-1638

- (b) The copy of any protest shall be received in the office designated above within one day of filing a protest with the GAO.

(End of provision)

52.236-27 SITE VISIT (CONSTRUCTION) (FEB 1995)

- (a) The clauses at 52.236-2, Differing Site Conditions, and 52.236-3, Site Investigations and Conditions Affecting the Work, will be included in any contract awarded as a result of this solicitation. Accordingly, offerors or quoters are urged and expected to inspect the site where the work will be performed.

- (b) Site visits may be arranged during normal duty hours by contacting:

Name: Tom Eidson or Craig Johnson
 Address: Army Corps of Engineers – Western Area Office – Grand Forks, North Dakota
 Telephone: 701-772-8292

- (c) The Government has contracted to dig test pits at three locations along the diversion alignment. The test pits are scheduled for Tuesday, May 1, 2001. Bidders who are interested in observing the operation should meet at 8:30 am

at the intersection of Gateway Drive and 55th Street in Grand Forks. Point of contact is Mr. Craig Johnson at 701-772-8292 or Mr. Grant Riddick at 651-290-5599.

52.236-4002 *WORK PERFORMED BY THE CONTRACTOR*

The successful bidder must furnish the Contracting Officer within 10 days after the award, the items of work which he will perform with his own forces, the percentage of the total work this represents, and the estimated cost thereof. (See Section 00700, clause entitled ("52.236-1, Performance of Work by the Contractor").

52.236-4005 *UNAVAILABILITY OF UTILITY SERVICES*

The responsibility shall be upon the Contractor to provide and maintain at its expense, adequate utilities for its use for construction and domestic consumption, and to install and maintain necessary connections and lines for same, but only at such locations and in such manner as may be approved by the Contracting Officer. Before final acceptance, temporary connections and lines installed by the Contractor shall be removed in a manner satisfactory to the Contracting Officer.

SECTION 00600 Representations & Certifications

CLAUSES INCORPORATED BY FULL TEXT

52.203-2 CERTIFICATE OF INDEPENDENT PRICE DETERMINATION (APR 1985)

(a) The offeror certifies that --

(1) The prices in this offer have been arrived at independently, without, for the purpose of restricting competition, any consultation, communication, or agreement with any other offeror or competitor relating to (i) those prices, (ii) the intention to submit an offer, or (iii) the methods of factors used to calculate the prices offered:

(2) The prices in this offer have not been and will not be knowingly disclosed by the offeror, directly or indirectly, to any other offeror or competitor before bid opening (in the case of a sealed bid solicitation) or contract award (in the case of a negotiated solicitation) unless otherwise required by law; and

(3) No attempt has been made or will be made by the offeror to induce any other concern to submit or not to submit an offer for the purpose of restricting competition.

(b) Each signature on the offer is considered to be a certification by the signatory that the signatory --

(1) Is the person in the offeror's organization responsible for determining the prices offered in this bid or proposal, and that the signatory has not participated and will not participate in any action contradictory to subparagraphs (a)(1) through (a)(3) above; or

(2) (i) Has been authorized, in writing, to act as an agent for the following principals in certifying that those principals have not participated, and will not participate in any action contrary to subparagraphs (a)(1) through (a)(3) above _____ (insert full name of person(s) in the offeror's organization responsible for determining the prices offered in this bid or proposal, and the title of his or her position in the offeror's organization);

(ii) As an authorized agent, does certify that the principals named in subdivision (b)(2)(i) above have not participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above; and

(iii) As an agent, has not personally participated, and will not participate, in any action contrary to subparagraphs (a)(1) through (a)(3) above.

(c) If the offeror deletes or modifies subparagraph (a)(2) above, the offeror must furnish with its offer a signed statement setting forth in detail the circumstances of the disclosure.

(End of clause)

52.203-11 CERTIFICATION AND DISCLOSURE REGARDING PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (APR 1991)

(a) The definitions and prohibitions contained in the clause, at FAR 52.203-12, Limitation on Payments to Influence Certain Federal Transactions, included in this solicitation, are hereby incorporated by reference in paragraph (b) of

this Certification.

(b) The offeror, by signing its offer, hereby certifies to the best of his or her knowledge and belief that on or after December 23, 1989,--

(1) No Federal appropriated funds have been paid or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a member of Congress on his or her behalf in connection with the awarding of any Federal contract, the making of any Federal grant, the making of any Federal loan, the entering into of any cooperative agreement, and the extension, continuation, renewal, amendment or modification of any Federal contract, grant, loan, or cooperative agreement;

(2) If any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress or an employee of a Member of Congress on his or her behalf in connection with this solicitation, the offeror shall complete and submit, with its offer, OMB standard form LLL, Disclosure of Lobbying Activities, to the Contracting Officer; and

(3) He or she will include the language of this certification in all subcontract awards at any tier and require that all recipients of subcontract awards in excess of \$100,000 shall certify and disclose accordingly.

(c) Submission of this certification and disclosure is a prerequisite for making or entering into this contract imposed by section 1352, title 31, United States Code. Any person who makes an expenditure prohibited under this provision, shall be subject to a civil penalty of not less than \$10,000, and not more than \$100,000, for each such failure.

(End of provision)

52.204-5 WOMEN-OWNED BUSINESS (OTHER THAN SMALL BUSINESS) (MAY 1999)

(a) Definition. Women-owned business concern, as used in this provision, means a concern that is at least 51 percent owned by one or more women; or in the case of any publicly owned business, at least 51 percent of its stock is owned by one or more women; and whose management and daily business operations are controlled by one or more women.

(b) Representation. [Complete only if the offeror is a women-owned business concern and has not represented itself as a small business concern in paragraph (b)(1) of FAR 52.219-1, Small Business Program Representations, of this solicitation.] The offeror represents that it () is a women-owned business concern.

(End of provision)

52.209-5 CERTIFICATION REGARDING DEBARMENT, SUSPENSION, PROPOSED DEBARMENT, AND OTHER RESPONSIBILITY MATTERS (JAN 2001)

(a)(1) The Offeror certifies, to the best of its knowledge and belief, that--

(i) The Offeror and/or any of its Principals --

(A) Are [] are not [] presently debarred, suspended, proposed for debarment, or declared ineligible for the award of contracts by any Federal agency;

(B) Have ☐ have not ☐, within the three-year period preceding this offer, been convicted of or had a civil judgment rendered against them for: commission of fraud or a criminal offense in connection with obtaining, attempting to obtain, or performing a public (Federal, state, or local) contract or subcontract; violation of Federal or state antitrust statutes relating to the submission of offers; or commission of embezzlement, theft, forgery, bribery, falsification or destruction of records, making false statements, tax evasion, or receiving stolen property;

(C) Are ☐ are not ☐ presently indicted for, or otherwise criminally or civilly charged by a governmental entity with, commission of any of the offenses enumerated in subdivision (a)(1)(i)(B) of this provision; and

(ii)(A) The offeror, aside from the offenses enumerated in paragraphs (a)(1)(i)(A), (B), and (C) of this provision, has ☐ has not ☐ within the past three years, relative to tax, labor and employment, environmental, antitrust, or consumer protection laws--

(1) Been convicted of a Federal or state felony (or has any Federal or state felony indictments currently pending against them); or

(2) Had a Federal court judgment in a civil case brought by the United States rendered against them; or

(3) Had an adverse decision by a Federal administrative law judge, board, or commission indicating a willful violation of law.

(B) If the offeror has responded affirmatively, the offeror shall provide additional information if requested by the Contracting Officer; and

(iii) The Offeror has ☐ has not ☐, within a three-year period preceding this offer, had one or more contracts terminated for default by any Federal agency.

(2) "Principals," for the purposes of this certification, means officers; directors; owners; partners; and, persons having primary management or supervisory responsibilities within a business entity (e.g., general manager; plant manager; head of a subsidiary, division, or business segment, and similar positions).

THIS CERTIFICATION CONCERNS A MATTER WITHIN THE JURISDICTION OF AN AGENCY OF THE UNITED STATES AND THE MAKING OF A FALSE, FICTITIOUS, OR FRAUDULENT CERTIFICATION MAY RENDER THE MAKER SUBJECT TO PROSECUTION UNDER SECTION 1001, TITLE 18, UNITED STATES CODE.

(b) The Offeror shall provide immediate written notice to the Contracting Officer if, at any time prior to contract award, the Offeror learns that its certification was erroneous when submitted or has become erroneous by reason of changed circumstances.

(c) A certification that any of the items in paragraph (a) of this provision exists will not necessarily result in withholding of an award under this solicitation. However, the certification will be considered in connection with a determination of the Offeror's responsibility. Failure of the Offeror to furnish a certification or provide such additional information as requested by the Contracting Officer may render the Offeror nonresponsible.

(d) Nothing contained in the foregoing shall be construed to require establishment of a system of records in order to render, in good faith, the certification required by paragraph (a) of this provision. The knowledge and information of an Offeror is not required to exceed that which is normally possessed by a prudent person in the ordinary course of business dealings.

(e) The certification in paragraph (a) of this provision is a material representation of fact upon which reliance was placed when making award. If it is later determined that the Offeror knowingly rendered an erroneous certification, in addition to other remedies available to the Government, the Contracting Officer may terminate the contract resulting from this solicitation for default.

(End of provision)

52.214-30 ANNUAL REPRESENTATIONS AND CERTIFICATIONS--SEALED BIDDING (JAN 1997)

The bidder has (check the appropriate block):

☐ (a) Submitted to the contracting office issuing this solicitation, annual representations and certifications dated _____ [insert date of signature on submission], which are incorporated herein by reference, and are current, accurate, and complete as of the date of this bid, except as follows [insert changes that affect only this solicitation; if "none," so state]:

☐ (b) Enclosed its annual representations and certifications.

52.219-1 SMALL BUSINESS PROGRAM REPRESENTATIONS (OCT 2000) ALTERNATE I (OCT 2000) & ALTERNATE II (OCT 2000)

(a)(1) The North American Industry Classification System (NAICS) code for this acquisition is 234110.

(2) The small business size standard is \$27.5 million.

(3) The small business size standard for a concern which submits an offer in its own name, other than on a construction or service contract, but which proposes to furnish a product which it did not itself manufacture, is 500 employees.

(b) Representations. (1) The offeror represents as part of its offer that it () is, () is not a small business concern.

(2) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents, for general statistical purposes, that it () is, () is not a small disadvantaged business concern as defined in 13 CFR 124.1002.

(3) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it () is, () is not a women-owned small business concern.

(4) (Complete only if the offeror represented itself as a small business concern in paragraph (b)(1) of this provision.) The offeror represents as part of its offer that it () is, () is not a veteran-owned small business concern.

(5) (Complete only if the offeror represented itself as a veteran-owned small business concern in paragraph (b)(4) of this provision.) The offeror represents as part of its offer that it () is, () is not a service-disabled veteran-owned small business concern.

(6) (Complete only if offeror represented itself as small business concern in paragraph (b)(1) of this provision). The offeror represents, as part of its offer, that--

(i) It () is, () is not a HUBZone small business concern listed, on the date of this representation, on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration, and no material

change in ownership and control, principal office, or HUBZone employee percentage has occurred since it was certified by the Small Business Administration in accordance with 13 CFR Part 126; and

(ii) It () is, () is not a joint venture that complies with the requirements of 13 CFR Part 126, and the representation in paragraph (b)(6)(i) of this provision is accurate for the HUBZone small business concern or concerns that are participating in the joint venture. (The offeror shall enter the name or names of the HUBZone small business concern or concerns that are participating in the joint venture: _____.) Each HUBZone small business concern participating in the joint venture shall submit a separate signed copy of the HUBZone representation.

(7) (Complete if offeror represented itself as disadvantaged in paragraph (b)(2) of this provision.) The offeror shall check the category in which its ownership falls:

() Black American.

() Hispanic American.

() Native American (American Indians, Eskimos, Aleuts, or Native Hawaiians).

() Asian-Pacific American (persons with origins from Burma, Thailand, Malaysia, Indonesia, Singapore, Brunei, Japan, China, Taiwan, Laos, Cambodia (Kampuchea), Vietnam, Korea, The Philippines, U.S. Trust Territory of the Pacific Islands (Republic of Palau), Republic of the Marshall Islands, Federated States of Micronesia, the Commonwealth of the Northern Mariana Islands, Guam, Samoa, Macao, Hong Kong, Fiji, Tonga, Kiribati, Tuvalu, or Nauru).

() Subcontinent Asian (Asian-Indian) American (persons with origins from India, Pakistan, Bangladesh, Sri Lanka, Bhutan, the Maldives Islands, or Nepal).

(c) Definitions. As used in this provision--

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

(i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and

(ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

"Small business concern," means a concern, including its affiliates, that is independently owned and operated, not dominant in the field of operation in which it is bidding on Government contracts, and qualified as a small business under the criteria in 13 CFR Part 121 and the size standard in paragraph (a) of this provision.

Veteran-owned small business concern means a small business concern--

(1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and

(2) The management and daily business operations of which are controlled by one or more veterans.

"Women-owned small business concern," means a small business concern --

(1) Which is at least 51 percent owned by one or more women or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and

(2) Whose management and daily business operations are controlled by one or more women.

(d) Notice.

(1) If this solicitation is for supplies and has been set aside, in whole or in part, for small business concerns, then the clause in this solicitation providing notice of the set-aside contains restrictions on the source of the end items to be furnished.

(2) Under 15 U.S.C. 645(d), any person who misrepresents a firm's status as a small, HUBZone small, small disadvantaged, or women-owned small business concern in order to obtain a contract to be awarded under the preference programs established pursuant to section 8(a), 8(d), 9, or 15 of the Small Business Act or any other provision of Federal law that specifically references section 8(d) for a definition of program eligibility, shall--

(i) Be punished by imposition of fine, imprisonment, or both;

(ii) Be subject to administrative remedies, including suspension and debarment; and

(iii) Be ineligible for participation in programs conducted under the authority of the Act.

(End of provision)

52.219-2 EQUAL LOW BIDS. (OCT 1995)

(a) This provision applies to small business concerns only.

(b) The bidder's status as a labor surplus area (LSA) concern may affect entitlement to award in case of tie bids. If the bidder wishes to be considered for this priority, the bidder must identify, in the following space, the LSA in which the costs to be incurred on account of manufacturing or production (by the bidder or the first-tier subcontractors) amount to more than 50 percent of the contract price.

(c) Failure to identify the labor surplus area as specified in paragraph (b) of this provision will preclude the bidder from receiving priority consideration. If the bidder is awarded a contract as a result of receiving priority consideration under this provision and would not have otherwise received award, the bidder shall perform the contract or cause the contract to be performed in accordance with the obligations of an LSA concern.

52.219-4 NOTICE OF PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS (JAN 1999)

(a) Definition. HUBZone small business concern, as used in this clause, means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration.

(b) Evaluation preference. (1) Offers will be evaluated by adding a factor of 10 percent to the price of all offers, except--

(i) Offers from HUBZone small business concerns that have not waived the evaluation preference;

(ii) Otherwise successful offers from small business concerns;

(iii) Otherwise successful offers of eligible products under the Trade Agreements Act when the dollar threshold for application of the Act is exceeded (see 25.402 of the Federal Acquisition Regulation (FAR)); and

(iv) Otherwise successful offers where application of the factor would be inconsistent with a Memorandum of Understanding or other international agreement with a foreign government.

(2) The factor of 10 percent shall be applied on a line item basis or to any group of items on which award may be made. Other evaluation factors described in the solicitation shall be applied before application of the factor.

(3) A concern that is both a HUBZone small business concern and a small disadvantaged business concern will receive the benefit of both the HUBZone small business price evaluation preference and the small disadvantaged business price evaluation adjustment (see FAR clause 52.219-23). Each applicable price evaluation preference or adjustment shall be calculated independently against an offeror's base offer.

These individual preference amounts shall be added together to arrive at the total evaluated price for that offer.

(c) Waiver of evaluation preference. A HUBZone small business concern may elect to waive the evaluation preference, in which case the factor will be added to its offer for evaluation purposes. The agreements in paragraph (d) of this clause do not apply if the offeror has waived the evaluation preference.

___ Offeror elects to waive the evaluation preference.

(d) Agreement. A HUBZone small business concern agrees that in the performance of the contract, in the case of a contract for

(1) Services (except construction), at least 50 percent of the cost of personnel for contract performance will be spent for employees of the concern or employees of other HUBZone small business concerns;

(2) Supplies (other than procurement from a nonmanufacturer of such supplies), at least 50 percent of the cost of manufacturing, excluding the cost of materials, will be performed by the concern or other HUBZone small business concerns;

(3) General construction, at least 15 percent of the cost of the contract performance incurred for personnel will be spent on the concern's employees or the employees of other HUBZone small business concerns; or

(4) Construction by special trade contractors, at least 25 percent of the cost of the contract performance incurred for personnel will be spent on the concern's employees or the employees of other HUBZone small business concerns.

(e) A HUBZone joint venture agrees that in the performance of the contract, the applicable percentage specified in paragraph (d) of this clause will be performed by the HUBZone small business participant or participants.

(f) A HUBZone small business concern nonmanufacturer agrees to furnish in performing this contract only end items manufactured or produced by HUBZone small business manufacturer concerns. This paragraph does not apply in connection with construction or service contracts.

(End of clause)

52.222-22 PREVIOUS CONTRACTS AND COMPLIANCE REPORTS (FEB 1999)

The offeror represents that --

(a) ☐ It has, ☐ has not participated in a previous contract or subcontract subject to the Equal Opportunity clause of this solicitation;

(b) ☐ It has, ☐ has not, filed all required compliance reports; and

(c) Representations indicating submission of required compliance reports, signed by proposed subcontractors, will be obtained before subcontract awards.

(End of provision)

52.223-13 CERTIFICATION OF TOXIC CHEMICAL RELEASE REPORTING (OCT 2000)

(a) Submission of this certification is a prerequisite for making or entering into this contract imposed by Executive Order 12969, August 8, 1995.

(b) By signing this offer, the offeror certifies that--

(1) As the owner or operator of facilities that will be used in the performance of this contract that are subject to the filing and reporting requirements described in section 313 of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023) and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106), the offeror will file and continue to file for such facilities for the life of the contract the Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of EPCRA and section 6607 of PPA; or

(2) None of its owned or operated facilities to be used in the performance of this contract is subject to the Form R filing and reporting requirements because each such facility is exempt for at least one of the following reasons:
(Check each block that is applicable.)

☐ (i) The facility does not manufacture, process or otherwise use any toxic chemicals listed under section 313(c) of EPCRA, 42 U.S.C. 11023(c);

☐ (ii) The facility does not have 10 or more full-time employees as specified in section 313.(b)(1)(A) of EPCRA 42 U.S.C. 11023(b)(1)(A);

☐ (iii) The facility does not meet the reporting thresholds of toxic chemicals established under section 313(f) of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);

☐ (iv) The facility does not fall within Standard Industrial Classification Code (SIC) major groups 20 through 39 or their corresponding North American Industry Classification System (NAICS) sectors 31 through 33; or

☐ (v) The facility is not located within any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Northern Mariana Islands, or any other territory or possession over which the United States has jurisdiction.

252.209-7001 DISCLOSURE OF OWNERSHIP OR CONTROL BY THE GOVERNMENT OF A TERRORIST COUNTRY (MAR 1998)

(a) "Definitions."

As used in this provision --

(a) "Government of a terrorist country" includes the state and the government of a terrorist country, as well as any political subdivision, agency, or instrumentality thereof.

(2) "Terrorist country" means a country determined by the Secretary of State, under section 6(j)(1)(A) of the Export Administration Act of 1979 (50 U.S.C. App. 2405(j)(i)(A)), to be a country the government of which has repeatedly provided support for such acts of international terrorism. As of the date of this provision, terrorist countries include: Cuba, Iran, Iraq, Libya, North Korea, Sudan, and Syria.

(3) "Significant interest" means --

(i) Ownership of or beneficial interest in 5 percent or more of the firm's or subsidiary's securities. Beneficial interest includes holding 5 percent or more of any class of the firm's securities in "nominee shares," "street names," or some other method of holding securities that does not disclose the beneficial owner;

(ii) Holding a management position in the firm, such as a director or officer;

(iii) Ability to control or influence the election, appointment, or tenure of directors or officers in the firm;

(iv) Ownership of 10 percent or more of the assets of a firm such as equipment, buildings, real estate, or other tangible assets of the firm; or

(v) Holding 50 percent or more of the indebtedness of a firm.

(b) "Prohibition on award."

In accordance with 10 U.S.C. 2327, no contract may be awarded to a firm or a subsidiary of a firm if the government of a terrorist country has a significant interest in the firm or subsidiary or, in the case of a subsidiary, the firm that owns the subsidiary, unless a waiver is granted by the Secretary of Defense.

(c) "Disclosure."

If the government of a terrorist country has a significant interest in the Offeror or a subsidiary of the Offeror, the Offeror shall disclose such interest in an attachment to its offer. If the Offeror is a subsidiary, it shall also disclose any significant interest the government of a terrorist country has in any firm that owns or controls the subsidiary. The disclosure shall include --

(1) Identification of each government holding a significant interest; and

(2) A description of the significant interest held by each government.

(End of provision)

252.225-7017 PROHIBITION ON AWARD TO COMPANIES OWNED BY THE PEOPLE'S REPUBLIC OF CHINA (FEB 2000)

(a) Definition. "People's Republic of China," as used in this provision, means the government of the People's Republic of China, including its political subdivisions, agencies, and instrumentalities.

(b) Prohibition on award. Section 8120 of the Department of Defense Appropriations Act for fiscal year 1999 (Pub. L. 105-262), as amended by Section 144 of Title I, Division C, of the Omnibus Consolidated and Emergency Supplemental Appropriations Act, 1999 (Pub. L. 105-277), prohibits the award of a contract under this solicitation to any company in which the Director of Defense Procurement (Office of the Under Secretary of Defense (Acquisition, Technology, and Logistics)) has determined that the People's Republic of China or the People's Liberation Army of the People's Republic of China owns more than 50 percent interest.

(c) Representation. By submission of an offer, the offeror represents that the People's Republic of China or the People's Liberation Army of the People's Republic of China does not own more than 50 percent interest in the offeror.

(End of provision)

252.227-7028 TECHNICAL DATA OR COMPUTER SOFTWARE PREVIOUSLY DELIVERED TO THE GOVERNMENT (JUN 1995)

The Offeror shall attach to its offer an identification of all documents or other media incorporating technical data or computer software it intends to deliver under this contract with other than unlimited rights that are identical or substantially similar to documents or other media that the Offeror has produced for, delivered to, or is obligated to deliver to the Government under any contract or subcontract. The attachment shall identify--

(a) The contract number under which the data or software were produced;

(b) The contract number under which, and the name and address of the organization to whom, the data or software were most recently delivered or will be delivered; and

(c) Any limitations on the Government's rights to use or disclose the data or software, including, when applicable, identification of the earliest date the limitations expire.

(End of clause)

252.247-7022 REPRESENTATION OF EXTENT OF TRANSPORTATION BY SEA (AUG 1992)

(a) The Offeror shall indicate by checking the appropriate blank in paragraph (b) of this provision whether transportation of supplies by sea is anticipated under the resultant contract. The term supplies is defined in the Transportation of Supplies by Sea clause of this solicitation.

(b) Representation. The Offeror represents that it:

____ (1) Does anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

____ (2) Does not anticipate that supplies will be transported by sea in the performance of any contract or subcontract resulting from this solicitation.

(c) Any contract resulting from this solicitation will include the Transportation of Supplies by Sea clause. If the Offeror represents that it will not use ocean transportation, the resulting contract will also include the Defense FAR Supplement clause at 252.247-7024, Notification of Transportation of Supplies by Sea.

(End of provision)

SECTION 00700 Contract Clauses

CLAUSES INCORPORATED BY FULL TEXT

52.202-1 DEFINITIONS (OCT 1995) --ALTERNATE I (APR 1984)

(a) "Head of the agency" (also called "agency head") or "Secretary" means the Secretary (or Attorney General, Administrator, Governor, Chairperson, or other chief official, as appropriate) of the agency, including any deputy or assistant chief official of the agency; and the term "authorized representative" means any person, persons, or board (other than the Contracting Officer) authorized to act for the head of the agency or Secretary.

(b) "Commercial component" means any component that is a commercial item.

(c) "Component" means any item supplied to the Federal Government as part of an end item or of another component.

(d) "Nondevelopmental item" means--

(1) Any previously developed item of supply used exclusively for governmental purposes by a Federal agency, a State or local government, or a foreign government with which the United States has a mutual defense cooperation agreement;

(2) Any item described in paragraph (e)(1) of this definition that requires only minor modification or modifications of a type customarily available in the commercial marketplace in order to meet the requirements of the procuring department or agency; or

(3) Any item of supply being produced that does not meet the requirements of paragraph (e)(1) or (e)(2) solely because the item is not yet in use.

(e) "Contracting Officer" means a person with the authority to enter into, administer, and/or terminate contracts and make related determinations and findings. The term includes certain authorized representatives of the Contracting Officer acting within the limits of their authority as delegated by the Contracting Officer.

(f) Except as otherwise provided in this contract, the term "subcontracts" includes, but is not limited to, purchase orders and changes and modifications to purchase orders under this contract.

52.202-4001 DEFINITIONS (MAY 1995) EFARS Part 2.101

"Chief of Contracting Office" means the Chief of the Contracting Division at a District, or the Director of Contracting at a Division, Center, Laboratory, or other support activity.

"Command" means each USACE Division, each USACE District, The U.S. Army Engineering and Support Center (HNC), Transatlantic Programs Center (TAC), Transatlantic Programs Center (Europe) (TAE), Topographic Engineer Center (TEC), Cold Regions Research and Engineering Laboratory (CRREL), Construction Engineering

Research Laboratory (CERL), Humphreys Engineering Center Support Activity (HECSA), and Waterways experiment Station (WES).

"Commander" means the commanding officer of each USACE district and each USACE division, and the director or commander of HNC, TAC, TAE, ETL, CRREL, CERL, HECSA and WES.

"Head of Contracting Activity (HCA)" for USACE means the Chief of Engineers.

Centers. For determining contracting authority levels for this regulation, Centers (HNC, and TAC) will equate to a Division. As a subordinate unit to TAC, TAE's contracting authority will therefore equate to that of a district.

Level higher than the contracting officer. When a District or TAE chief of contracting is the contracting officer, a "level higher than the contracting officer" means the Division or Center Director of Contracting. When an operating Division, Center or Laboratory Director/Chief of Contracting is the contracting officer a "level higher than the contracting officer" means the PARC.

Local Cooperation Agreements (LCAs). See Project Cooperation Agreements.

Project Cooperation Agreements. Formerly referred to as Local Cooperation Agreements, these are agreements under 31 U.S.C. 6305 and 42 U.S.C. 1962d-5b. They are not contracts as defined by the FAR.

"USACE and HQUSACE" means the United States Army Corps of Engineers and its headquarters, respectively.

52.203-3 GRATUITIES (APR 1984)

(a) The right of the Contractor to proceed may be terminated by written notice if, after notice and hearing, the agency head or a designee determines that the Contractor, its agent, or another representative--

(1) Offered or gave a gratuity (e.g., an entertainment or gift) to an officer, official, or employee of the Government; and

(2) Intended, by the gratuity, to obtain a contract or favorable treatment under a contract.

(b) The facts supporting this determination may be reviewed by any court having lawful jurisdiction.

(c) If this contract is terminated under paragraph (a) of this clause, the Government is entitled--

(1) To pursue the same remedies as in a breach of the contract; and

(2) In addition to any other damages provided by law, to exemplary damages of not less than 3 nor more than 10 times the cost incurred by the Contractor in giving gratuities to the person concerned, as determined by the agency head or a designee. (This subparagraph (c)(2) is applicable only if this contract uses money appropriated to the Department of Defense.)

(d) The rights and remedies of the Government provided in this clause shall not be exclusive and are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

52.203-5 COVENANT AGAINST CONTINGENT FEES (APR 1984)

(a) The Contractor warrants that no person or agency has been employed or retained to solicit or obtain this contract upon an agreement or understanding for a contingent fee, except a bona fide employee or agency. For breach or violation of this warranty, the Government shall have the right to annul this contract without liability or, in its discretion, to deduct from the contract price or consideration, or otherwise recover, the full amount of the contingent fee.

(b) "Bona fide agency," as used in this clause, means an established commercial or selling agency, maintained by a contractor for the purpose of securing business, that neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds itself out as being able to obtain any Government contract or contracts through improper influence.

"Bona fide employee," as used in this clause, means a person, employed by a contractor and subject to the contractor's supervision and control as to time, place, and manner of performance, who neither exerts nor proposes to exert improper influence to solicit or obtain Government contracts nor holds out as being able to obtain any Government contract or contracts through improper influence.

"Contingent fee," as used in this clause, means any commission, percentage, brokerage, or other fee that is contingent upon the success that a person or concern has in securing a Government contract.

"Improper influence," as used in this clause, means any influence that induces or tends to induce a Government employee or officer to give consideration or to act regarding a Government contract on any basis other than the merits of the matter.

(End of clause)

52.203-7 ANTI-KICKBACK PROCEDURES. (JUL 1995)

(a) Definitions.

"Kickback," as used in this clause, means any money, fee, commission, credit, gift, gratuity, thing of value, or compensation of any kind which is provided, directly or indirectly, to any prime Contractor, prime Contractor employee, subcontractor, or subcontractor employee for the purpose of improperly obtaining or rewarding favorable treatment in connection with a prime contract or in connection with a subcontract relating to a prime contract.

"Person," as used in this clause, means a corporation, partnership, business association of any kind, trust, joint-stock company, or individual.

"Prime contract," as used in this clause, means a contract or contractual action entered into by the United States for the purpose of obtaining supplies, materials, equipment, or services of any kind.

"Prime Contractor," as used in this clause, means a person who has entered into a prime contract with the United States.

"Prime Contractor employee," as used in this clause, means any officer, partner, employee, or agent of a prime Contractor.

"Subcontract," as used in this clause, means a contract or contractual action entered into by a prime Contractor or subcontractor for the purpose of obtaining supplies, materials, equipment, or services of any kind under a prime

contract.

"Subcontractor," as used in this clause, (1) means any person, other than the prime Contractor, who offers to furnish or furnishes any supplies, materials, equipment, or services of any kind under a prime contract or a subcontract entered into in connection with such prime contract, and (2) includes any person who offers to furnish or furnishes general supplies to the prime Contractor or a higher tier subcontractor.

"Subcontractor employee," as used in this clause, means any officer, partner, employee, or agent of a subcontractor.

(b) The Anti-Kickback Act of 1986 (41 U.S.C. 51-58) (the Act), prohibits any person from -

(1) Providing or attempting to provide or offering to provide any kickback;

(2) Soliciting, accepting, or attempting to accept any kickback; or

(3) Including, directly or indirectly, the amount of any kickback in the contract price charged by a prime Contractor to the United States or in the contract price charged by a subcontractor to a prime Contractor or higher tier subcontractor.

(c)(1) The Contractor shall have in place and follow reasonable procedures designed to prevent and detect possible violations described in paragraph (b) of this clause in its own operations and direct business relationships.

(2) When the Contractor has reasonable grounds to believe that a violation described in paragraph (b) of this clause may have occurred, the Contractor shall promptly report in writing the possible violation. Such reports shall be made to the inspector general of the contracting agency, the head of the contracting agency if the agency does not have an inspector general, or the Department of Justice.

(3) The Contractor shall cooperate fully with any Federal agency investigating a possible violation described in paragraph (b) of this clause.

(4) The Contracting Officer may (i) offset the amount of the kickback against any monies owed by the United States under the prime contract and/or (ii) direct that the Prime Contractor withhold, from sums owed a subcontractor under the prime contract, the amount of any kickback. The Contracting Officer may order the monies withheld under subdivision (c)(4)(ii) of this clause be paid over to the Government unless the Government has already offset those monies under subdivision (c)(4)(i) of this clause. In either case, the Prime Contractor shall notify the Contracting Officer when the monies are withheld.

(5) The Contractor agrees to incorporate the substance of this clause, including this subparagraph (c)(5) but excepting subparagraph (c)(1), in all subcontracts under this contract which exceed \$100,000.

52.203-8 CANCELLATION, RESCISSION, AND RECOVERY OF FUNDS FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997)

(a) If the Government receives information that a contractor or a person has engaged in conduct constituting a violation of subsection (a), (b), (c), or (d) of Section 27 of the Office of Federal Procurement Policy Act (41 U.S.C. 423) (the Act), as amended by section 4304 of the 1996 National Defense Authorization Act for Fiscal Year 1996 (Pub. L. 104-106), the Government may--

(1) Cancel the solicitation, if the contract has not yet been awarded or issued; or

(2) Rescind the contract with respect to which--

(i) The Contractor or someone acting for the Contractor has been convicted for an offense where the conduct constitutes a violation of subsection 27 (a) or (b) of the Act for the purpose of either--

(A) Exchanging the information covered by such subsections for anything of value; or

(B) Obtaining or giving anyone a competitive advantage in the award of a Federal agency procurement contract; or

(ii) The head of the contracting activity has determined, based upon a preponderance of the evidence, that the Contractor or someone acting for the Contractor has engaged in conduct constituting an offense punishable under subsections 27(e)(1) of the Act.

(b) If the Government rescinds the contract under paragraph (a) of this clause, the Government is entitled to recover, in addition to any penalty prescribed by law, the amount expended under the contract.

(c) The rights and remedies of the Government specified herein are not exclusive, and are in addition to any other rights and remedies provided by law, regulation, or under this contract.

52.203-10 PRICE OR FEE ADJUSTMENT FOR ILLEGAL OR IMPROPER ACTIVITY (JAN 1997)

(a) The Government, at its election, may reduce the price of a fixed-price type contract and the total cost and fee under a cost-type contract by the amount of profit or fee determined as set forth in paragraph (b) of this clause if the head of the contracting activity or designee determines that there was a violation of subsection 27 (a), (b), or (c) of the Office of Federal Procurement Policy Act, as amended (41 U.S.C. 423), as implemented in section 3.104 of the Federal Acquisition Regulation.

(b) The price or fee reduction referred to in paragraph (a) of this clause shall be--

(1) For cost-plus-fixed-fee contracts, the amount of the fee specified in the contract at the time of award;

(2) For cost-plus-incentive-fee contracts, the target fee specified in the contract at the time of award, notwithstanding any minimum fee or "fee floor" specified in the contract;

(3) For cost-plus-award-fee contracts--

(i) The base fee established in the contract at the time of contract award;

(ii) If no base fee is specified in the contract, 30 percent of the amount of each award fee otherwise payable to the Contractor for each award fee evaluation period or at each award fee determination point.

(4) For fixed-price-incentive contracts, the Government may--

(i) Reduce the contract target price and contract target profit both by an amount equal to the initial target profit specified in the contract at the time of contract award; or

(ii) If an immediate adjustment to the contract target price and contract target profit would have a significant adverse impact on the incentive price revision relationship under the contract, or adversely affect the contract financing provisions, the Contracting Officer may defer such adjustment until establishment of the total final price of the

contract. The total final price established in accordance with the incentive price revision provisions of the contract shall be reduced by an amount equal to the initial target profit specified in the contract at the time of contract award and such reduced price shall be the total final contract price.

(5) For firm-fixed-price contracts, by 10 percent of the initial contract price or a profit amount determined by the Contracting Officer from records or documents in existence prior to the date of the contract award.

(c) The Government may, at its election, reduce a prime contractor's price or fee in accordance with the procedures of paragraph (b) of this clause for violations of the Act by its subcontractors by an amount not to exceed the amount of profit or fee reflected in the subcontract at the time the subcontract was first definitively priced.

(d) In addition to the remedies in paragraphs (a) and (c) of this clause, the Government may terminate this contract for default. The rights and remedies of the Government specified herein are not exclusive, and are in addition to any other rights and remedies provided by law or under this contract.

(End of clause)

52.203-12 LIMITATION ON PAYMENTS TO INFLUENCE CERTAIN FEDERAL TRANSACTIONS (JUN 1997)

(a) Definitions.

"Agency," as used in this clause, means executive agency as defined in 2.101.

"Covered Federal action," as used in this clause, means any of the following Federal actions:

- (1) The awarding of any Federal contract.
- (2) The making of any Federal grant.
- (3) The making of any Federal loan.
- (4) The entering into of any cooperative agreement.
- (5) The extension, continuation, renewal, amendment, or modification of any Federal contract, grant, loan, or cooperative agreement.

"Indian tribe" and "tribal organization," as used in this clause, have the meaning provided in section 4 of the Indian Self-Determination and Education Assistance Act (25 U.S.C. 450B) and include Alaskan Natives.

"Influencing or attempting to influence," as used in this clause, means making, with the intent to influence, any communication to or appearance before an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any covered Federal action.

"Local government," as used in this clause, means a unit of government in a State and, if chartered, established, or otherwise recognized by a State for the performance of a governmental duty, including a local public authority, a special district, an intrastate district, a council of governments, a sponsor group representative organization, and any other instrumentality of a local government.

"Officer or employee of an agency," as used in this clause, includes the following individuals who are employed by an agency:

(1) An individual who is appointed to a position in the Government under title 5, United States Code, including a position under a temporary appointment.

(2) A member of the uniformed services, as defined in subsection 101(3), title 37, United States Code.

(3) A special Government employee, as defined in section 202, title 18, United States Code.

(4) An individual who is a member of a Federal advisory committee, as defined by the Federal Advisory Committee Act, title 5, United States Code, appendix 2.

"Person," as used in this clause, means an individual, corporation, company, association, authority, firm, partnership, society, State, and local government, regardless of whether such entity is operated for profit, or not for profit. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Reasonable compensation," as used in this clause, means, with respect to a regularly employed officer or employee of any person, compensation that is consistent with the normal compensation for such officer or employee for work that is not furnished to, not funded by, or not furnished in cooperation with the Federal Government.

"Reasonable payment," as used in this clause, means, with respect to professional and other technical services, a payment in an amount that is consistent with the amount normally paid for such services in the private sector.

"Recipient," as used in this clause, includes the Contractor and all subcontractors. This term excludes an Indian tribe, tribal organization, or any other Indian organization with respect to expenditures specifically permitted by other Federal law.

"Regularly employed," as used in this clause, means, with respect to an officer or employee of a person requesting or receiving a Federal contract, an officer or employee who is employed by such person for at least 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person for receipt of such contract. An officer or employee who is employed by such person for less than 130 working days within 1 year immediately preceding the date of the submission that initiates agency consideration of such person shall be considered to be regularly employed as soon as he or she is employed by such person for 130 working days.

"State," as used in this clause, means a State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, a territory or possession of the United States, an agency or instrumentality of a State, and multi-State, regional, or interstate entity having governmental duties and powers.

(b) Prohibitions.

(1) Section 1352 of title 31, United States Code, among other things, prohibits a recipient of a Federal contract, grant, loan, or cooperative agreement from using appropriated funds to pay any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with any of the following covered Federal actions: the awarding of any Federal contract; the making of any Federal grant; the making of any Federal loan; the entering into of any cooperative agreement; or the modification of any Federal contract, grant, loan, or cooperative agreement.

(2) The Act also requires Contractors to furnish a disclosure if any funds other than Federal appropriated funds (including profit or fee received under a covered Federal transaction) have been paid, or will be paid, to any person for influencing or attempting to influence an officer or employee of any agency, a Member of Congress, an officer or employee of Congress, or an employee of a Member of Congress in connection with a Federal contract, grant, loan, or cooperative agreement.

(3) The prohibitions of the Act do not apply under the following conditions:

(i) Agency and legislative liaison by own employees.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of a payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action if the payment is for agency and legislative liaison activities not directly related to a covered Federal action.

(B) For purposes of subdivision (b)(3)(i)(A) of this clause, providing any information specifically requested by an agency or Congress is permitted at any time.

(C) The following agency and legislative liaison activities are permitted at any time where they are not related to a specific solicitation for any covered Federal action:

(1) Discussing with an agency the qualities and characteristics (including individual demonstrations) of the person's products or services, conditions or terms of sale, and service capabilities.

(2) Technical discussions and other activities regarding the application or adaptation of the person's products or services for an agency's use.

(D) The following agency and legislative liaison activities are permitted where they are prior to formal solicitation of any covered Federal action--

(1) Providing any information not specifically requested but necessary for an agency to make an informed decision about initiation of a covered Federal action;

(2) Technical discussions regarding the preparation of an unsolicited proposal prior to its official submission; and

(3) Capability presentations by persons seeking awards from an agency pursuant to the provisions of the Small Business Act, as amended by Pub. L. 95-507, and subsequent amendments.

(E) Only those services expressly authorized by subdivision (b)(3)(i)(A) of this clause are permitted under this clause.

(ii) Professional and technical services.

(A) The prohibition on the use of appropriated funds, in subparagraph (b)(1) of this clause, does not apply in the case of--

(1) A payment of reasonable compensation made to an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action, if payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action.

(2) Any reasonable payment to a person, other than an officer or employee of a person requesting or receiving a covered Federal action or an extension, continuation, renewal, amendment, or modification of a covered Federal action if the payment is for professional or technical services rendered directly in the preparation, submission, or negotiation of any bid, proposal, or application for that Federal action or for meeting requirements imposed by or pursuant to law as a condition for receiving that Federal action. Persons other than officers or employees of a person requesting or receiving a covered Federal action include consultants and trade associations.

(B) For purposes of subdivision (b)(3)(ii)(A) of this clause, "professional and technical services" shall be limited to advice and analysis directly applying any professional or technical discipline. For example, drafting of a legal document accompanying a bid or proposal by a lawyer is allowable. Similarly, technical advice provided by an engineer on the performance or operational capability of a piece of equipment rendered directly in the negotiation of

a contract is allowable. However, communications with the intent to influence made by a professional (such as a licensed lawyer) or a technical person (such as a licensed accountant) are not allowable under this section unless they provide advice and analysis directly applying their professional or technical expertise and unless the advice or analysis is rendered directly and solely in the preparation, submission or negotiation of a covered Federal action. Thus, for example, communications with the intent to influence made by a lawyer that do not provide legal advice or analysis directly and solely related to the legal aspects of his or her client's proposal, but generally advocate one proposal over another are not allowable under this section because the lawyer is not providing professional legal services. Similarly, communications with the intent to influence made by an engineer providing an engineering analysis prior to the preparation or submission of a bid or proposal are not allowable under this section since the engineer is providing technical services but not directly in the preparation, submission or negotiation of a covered Federal action.

(C) Requirements imposed by or pursuant to law as a condition for receiving a covered Federal award include those required by law or regulation and any other requirements in the actual award documents.

(D) Only those services expressly authorized by subdivisions (b)(3)(ii)(A)(1) and (2) of this clause are permitted under this clause.

(E) The reporting requirements of FAR 3.803(a) shall not apply with respect to payments of reasonable compensation made to regularly employed officers or employees of a person.

(c) Disclosure.

(1) The Contractor who requests or receives from an agency a Federal contract shall file with that agency a disclosure form, OMB standard form LLL, Disclosure of Lobbying Activities, if such person has made or has agreed to make any payment using nonappropriated funds (to include profits from any covered Federal action), which would be prohibited under subparagraph (b)(1) of this clause, if paid for with appropriated funds.

(2) The Contractor shall file a disclosure form at the end of each calendar quarter in which there occurs any event that materially affects the accuracy of the information contained in any disclosure form previously filed by such person under subparagraph (c)(1) of this clause. An event that materially affects the accuracy of the information reported includes--

(i) A cumulative increase of \$25,000 or more in the amount paid or expected to be paid for influencing or attempting to influence a covered Federal action; or

(ii) A change in the person(s) or individual(s) influencing or attempting to influence a covered Federal action; or

(iii) A change in the officer(s), employee(s), or Member(s) contacted to influence or attempt to influence a covered Federal action.

(3) The Contractor shall require the submittal of a certification, and if required, a disclosure form by any person who requests or receives any subcontract exceeding \$100,000 under the Federal contract.

(4) All subcontractor disclosure forms (but not certifications) shall be forwarded from tier to tier until received by the prime Contractor. The prime Contractor shall submit all disclosures to the Contracting Officer at the end of the calendar quarter in which the disclosure form is submitted by the subcontractor. Each subcontractor certification shall be retained in the subcontract file of the awarding Contractor.

(d) Agreement. The Contractor agrees not to make any payment prohibited by this clause.

(e) Penalties.

(1) Any person who makes an expenditure prohibited under paragraph (a) of this clause or who fails to file or amend the disclosure form to be filed or amended by paragraph (b) of this clause shall be subject to civil penalties as

provided for by 31 U.S.C. 1352. An imposition of a civil penalty does not prevent the Government from seeking any other remedy that may be applicable.

(2) Contractors may rely without liability on the representation made by their subcontractors in the certification and disclosure form.

(f) Cost allowability. Nothing in this clause makes allowable or reasonable any costs which would otherwise be unallowable or unreasonable. Conversely, costs made specifically unallowable by the requirements in this clause will not be made allowable under any other provision.

(End of clause)

52.204-4 PRINTING/COPYING DOUBLE-SIDED ON RECYCLED PAPER (AUG 2000)

(a) Definitions. As used in this clause--

Postconsumer material means a material or finished product that has served its intended use and has been discarded for disposal or recovery, having completed its life as a consumer item. Postconsumer material is a part of the broader category of "recovered material." For paper and paper products, postconsumer material means "postconsumer fiber" defined by the U.S. Environmental Protection Agency (EPA) as--

(1) Paper, paperboard, and fibrous materials from retail stores, office buildings, homes, and so forth, after they have passed through their end-usage as a consumer item, including: used corrugated boxes; old newspapers; old magazines; mixed waste paper; tabulating cards; and used cordage; or

(2) All paper, paperboard, and fibrous materials that enter and are collected from municipal solid waste; but not

(3) Fiber derived from printers' over-runs, converters' scrap, and over-issue publications.

Printed or copied double-sided means printing or reproducing a document so that information is on both sides of a sheet of paper.

Recovered material, for paper and paper products, is defined by EPA in its Comprehensive Procurement Guideline as "recovered fiber" and means the following materials:

(1) Postconsumer fiber; and

(2) Manufacturing wastes such as --

(i) Dry paper and paperboard waste generated after completion of the papermaking process (that is, those manufacturing operations up to and including the cutting and trimming of the paper machine reel into smaller rolls or rough sheets) including: envelope cuttings, bindery trimmings, and other paper and paperboard waste resulting from printing, cutting, forming, and other converting operations; bag, box, and carton manufacturing wastes; and butt rolls, mill wrappers, and rejected unused stock; and

(ii) Repulped finished paper and paperboard from obsolete inventories of paper and paperboard manufacturers, merchants, wholesalers, dealers, printers, converters, or others.

(b) In accordance with Section 101 of Executive Order 13101 of September 14, 1998, Greening the Government through Waste Prevention, Recycling, and Federal Acquisition, the Contractor is encouraged to submit paper documents, such as offers, letters, or reports, that are printed or copied double-sided on recycled paper that meet

minimum content standards specified in Section 505 of Executive Order 13101, when not using electronic commerce methods to submit information or data to the Government.

(c) If the Contractor cannot purchase high-speed copier paper, offset paper, forms bond, computer printout paper, carbonless paper, file folders, white wove envelopes, writing and office paper, book paper, cotton fiber paper, and cover stock meeting the 30 percent postconsumer material standard for use in submitting paper documents to the Government, it should use paper containing no less than 20 percent postconsumer material. This lesser standard should be used only when paper meeting the 30 percent postconsumer material standard is not obtainable at a reasonable price or does not meet reasonable performance standards.

(End of clause)

52.209-6 PROTECTING THE GOVERNMENT'S INTEREST WHEN SUBCONTRACTING WITH CONTRACTORS DEBARRED, SUSPENDED, OR PROPOSED FOR DEBARMENT (JUL 1995)

(a) The Government suspends or debar Contractors to protect the Government's interests. The Contractor shall not enter into any subcontract in excess of the \$25,000 with a Contractor that is debarred, suspended, or proposed for debarment unless there is a compelling reason to do so.

(b) The Contractor shall require each proposed first-tier subcontractor, whose subcontract will exceed \$25,000, to disclose to the Contractor, in writing, whether as of the time of award of the subcontract, the subcontractor, or its principles, is or is not debarred, suspended, or proposed for debarment by the Federal Government.

(c) A corporate officer or a designee of the Contractor shall notify the Contracting Officer, in writing, before entering into a subcontract with a party that is debarred, suspended, or proposed for debarment (see FAR 9.404 for information on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs). The notice must include the following:

(1) The name of the subcontractor.

(2) The Contractor's knowledge of the reasons for the subcontractor being on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(3) The compelling reason(s) for doing business with the subcontractor notwithstanding its inclusion on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs.

(4) The systems and procedures the Contractor has established to ensure that it is fully protecting the Government's interests when dealing with such subcontractor in view of the specific basis for the party's debarment, suspension, or proposed debarment.

(End of clause)

52.211-10 COMMENCEMENT, PROSECUTION, AND COMPLETION OF WORK (APR 1984) - ALTERNATE I (APR 1984)

The Contractor shall be required to (a) commence work under this contract within 10 calendar days after the date the Contractor receives the notice to proceed, (b) prosecute the work diligently, and (c) complete the entire work ready for use no later than 660 calendar days after the date the contractor receives the notice to proceed. The time stated for completion shall include final cleanup of the premises.

The completion date is based on the assumption that the successful offeror will receive the notice to proceed by 11 Jun 01. The completion date will be extended by the number of calendar days after the above date that the Contractor receives the notice to proceed, except to the extent that the delay in issuance of the notice to proceed results from the failure of the Contractor to execute the contract and give the required performance and payment bonds within the time specified in the offer.

(End of clause)

52.211-12 LIQUIDATED DAMAGES-CONSTRUCTION (APR 1984)

(a) If the Contractor fails to complete the work within the time specified in the contract, or any extension, the Contractor shall pay to the Government as liquidated damages, the sum of \$490.00 for each calendar day of delay.

(b) If the Government terminates the Contractor's right to proceed, the resulting damage will consist of liquidated damages until such reasonable time as may be required for final completion of the work together with any increased costs occasioned the Government in completing the work.

(c) If the Government does not terminate the Contractor's right to proceed, the resulting damage will consist of liquidated damages until the work is completed or accepted.

(End of clause)

52.211-18 VARIATION IN ESTIMATED QUANTITY (APR 1984)

If the quantity of a unit-priced item in this contract is an estimated quantity and the actual quantity of the unit-priced item varies more than 15 percent above or below the estimated quantity, an equitable adjustment in the contract price shall be made upon demand of either party. The equitable adjustment shall be based upon any increase or decrease in costs due solely to the variation above 115 percent or below 85 percent of the estimated quantity. If the quantity variation is such as to cause an increase in the time necessary for completion, the Contractor may request, in writing, an extension of time, to be received by the Contracting Officer within 10 days from the beginning of the delay, or within such further period as may be granted by the Contracting Officer before the date of final settlement of the contract. Upon the receipt of a written request for an extension, the Contracting Officer shall ascertain the facts and make an adjustment for extending the completion date as, in the judgement of the Contracting Officer, is justified.

52.212-5000 EVALUATION OF SUBDIVIDED ITEMS (MAR 1995)--EFARS

Item Nos. 0020, 0021 and 0022 are subdivided into two or more estimated quantities and are to be separately priced. The Government will evaluate each of these items on the basis of total price of its sub-items.

(End of provision)

**52.212-5001 VARIATIONS IN ESTIMATED QUANTITIES, SUBDIVIDED ITEMS
(MAR 1995)--EFARS**

This variation in estimated quantities clause is applicable only to Items Nos. 0020, 0021 and 0022.

- (a) Variation from the estimated quantity in the actual work performed under any second or subsequent sub-item or elimination of all work under such a second or subsequent sub-item will not be the basis for an adjustment in contract unit price.
- (b) Where the actual quantity of work performed for Items Nos. 0020AA & 0020AB, 0021AA&0021AB and 0022AA&0022AB is less than 85% of the quantity of the first sub-item listed under such item, the contractor will be paid at the contract unit price for that sub-item for the actual quantity of work performed and, in addition, an equitable adjustment shall be made in accordance with the clause FAR 52.211-18, Variation in Estimated Quantities.
- (c) If the actual quantity of work performed under Items Nos. 0020AA & 0020AB, 0021AA&0021AB and 0022AA&0022AB exceeds 115% or is less than 85% of the total estimated quantity of the sub-item under that item and/or if the quantity of the work performed under the second sub-item or any subsequent sub-item under Items Nos. 0020AA & 0020AB, 0021AA&0021AB and 0022AA&0022AB exceeds 115% or is less than 85% of the estimated quantity of any such sub-item, and if such variation causes an increase or a decrease in the time required for performance of this contract the contract completion time will be adjusted in accordance with the clause FAR 52.211-18, Variation in Estimated Quantities.

(End of clause)

52.214-26 AUDIT AND RECORDS--SEALED BIDDING. (OCT 1997)

- (a) As used in this clause, records includes books, documents, accounting procedures and practices, and other data, regardless of type and regardless of whether such items are in written form, in the form of computer data, or in any other form.
- (b) Cost or pricing data. If the Contractor has been required to submit cost or pricing data in connection with the pricing of any modification to this contract, the Contracting Officer, or an authorized representative of the Contracting Officer, in order to evaluate the accuracy, completeness, and currency of the cost or pricing data, shall have the right to examine and audit all of the Contractor's records, including computations and projections, related to--
 - (1) The proposal for the modification;
 - (2) The discussions conducted on the proposal(s), including those related to negotiating;
 - (3) Pricing of the modification; or
 - (4) Performance of the modification.
- (c) Comptroller General. In the case of pricing any modification, the Comptroller General of the United States, or an authorized representative, shall have the same rights as specified in paragraph (b) of this clause.
- (d) Availability. The Contractor shall make available at its office at all reasonable times the materials described in reproduction, until 3 years after final payment under this contract, or for any other period specified in Subpart 4.7 of the Federal Acquisition Regulation (FAR). FAR Subpart 4.7, Contractor Records Retention, in effect on the date of this contract, is incorporated by reference in its entirety and made a part of this contract.
 - (1) If this contract is completely or partially terminated, the records relating to the work terminated shall be made available for 3 years after any resulting final termination settlement.

(2) Records pertaining to appeals under the Disputes clause or to litigation or the settlement of claims arising under or relating to the performance of this contract shall be made available until disposition of such appeals, litigation, or claims.

(e) The Contractor shall insert a clause containing all the provisions of this clause, including this paragraph (e), in all subcontracts expected to exceed the threshold in FAR 15.403-4(a)(1) for submission of cost or pricing data.

52.214-27 PRICE REDUCTION FOR DEFECTIVE COST OR PRICING DATA - MODIFICATIONS - SEALED BIDDING. (OCT 1997)

(a) This clause shall become operative only for any modification to this contract involving aggregate increases and/or decreases in costs, plus applicable profits, expected to exceed the threshold for the submission of cost or pricing data at FAR 15.403-4(a)(1), except that this clause does not apply to a modification if an exception under FAR 15.403-1(b) applies.

(1) Based on adequate price competition;

(2) Based on established catalog or market prices of commercial items sold in substantial quantities to the general public; or

(3) Set by law or regulation.

(b) If any price, including profit, negotiated in connection with any modification under this clause, was increased by any significant amount because

(1) the Contractor or a subcontractor furnished cost or pricing data that were not complete, accurate, and current as certified in its Certificate of Current Cost or Pricing Data;

(2) a subcontractor or prospective subcontractor furnished the Contractor cost or pricing data that were not complete, accurate, and current as certified in the Contractor's Certificate of Current Cost or Pricing Data; or

(3) any of these parties furnished data of any description that were not accurate, the price shall be reduced accordingly and the contract shall be modified to reflect the reduction. This right to a price reduction is limited to that resulting from defects in data relating to modifications for which this clause becomes operative under paragraph (a) above.

(c) Any reduction in the contract price under paragraph (b) above due to defective data from a prospective subcontractor that was not subsequently awarded the subcontract shall be limited to the amount, plus applicable overhead and profit markup, by which:

(1) the actual subcontract; or

(2) the actual cost to the Contractor, if there was no subcontract, was less than the prospective subcontract cost estimate submitted by the Contractor; provided, that the actual subcontract price was not itself affected by defective cost or pricing data.

(d) If the Contracting Officer determines under paragraph (b) of this clause that a price or cost reduction should be made:

(1) the Contractor agrees not to raise the following matters as a defense:

(i) The Contractor or subcontractor was a sole source supplier or otherwise was in a superior bargaining position and thus the price of the contract would not have been modified even if accurate, complete, and current cost or pricing data had been submitted;

(ii) The Contracting Officer should have known that the cost or pricing data in issue were defective even though the Contractor or subcontractor took no affirmative action to bring the character of the data to the attention of the Contracting Officer;

(iii) The contract was based on an agreement about the total cost of the contract and there was no agreement about the cost of each item procured under the contract; or

(iv) The Contractor or subcontractor did not submit a Certificate of Current Cost or Pricing Data.

(2) Except as prohibited by subdivision (d)(2)(ii) of this clause:

(i) an offset in an amount determined appropriate by the Contracting Officer based upon the facts shall be allowed against the amount of a contract price reduction if:

(A) The Contractor certifies to the Contracting Officer that, to the best of the Contractor's knowledge and belief, the Contractor is entitled to the offset in the amount requested; and

(B) The Contractor proves that the cost or pricing data were available before the date of agreement on the price of the contract (or price of the modification) and that the data were not submitted before such date.

(ii) An offset shall not be allowed if:

(A) The understated data was known by the Contractor to be understated when the Certificate of Current Cost or Pricing Data was signed; or (B) The Government proves that the facts demonstrate that the contract price would not have increased in the amount to be offset even if the available data had been submitted before the date of agreement on price.

(e) If any reduction in the contract price under this clause reduces the price of items for which payment was made prior to the date of the modification reflecting the price reduction, the Contractor shall be liable to and shall pay the United States at the time such overpayment is repaid:

(1) Simple interest on the amount of such overpayment to be computed from the date(s) of overpayment to the Contractor to the date the Government is repaid by the Contractor at the applicable underpayment rate effective for each quarter prescribed by the Secretary of the Treasury under 26 U.S.C. 6621(a)(2); and

(2) A penalty equal to the amount of the overpayment, if the Contractor or subcontractor knowingly submitted cost or pricing data which were incomplete, inaccurate, or noncurrent.

**52.214-28 SUBCONTRACTOR COST OR PRICING DATA - MODIFICATIONS - SEALED BIDDING.
(OCT 1997)**

(a) The requirements of paragraphs (b) and (c) of this clause shall:

(1) become operative only for any modification to this contract involving aggregate increases and/or decreases in costs, plus applicable profits, expected to exceed the threshold for submission of cost or pricing data at (FAR) 48 CFR 15.403-4(a)(1); and

(2) be limited to such modifications.

(b) Before awarding any subcontract expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4(a)(1), on the date of agreement on price or the date of award, whichever is later; or before pricing any subcontract modifications involving aggregate increases and/or decreases in costs, plus applicable profits, expected to exceed the threshold for submission of cost or pricing data at FAR 15.403-4(a)(1), the Contractor shall require the subcontractor to submit cost or pricing data (actually or by specific identification in writing), unless an exception under FAR 15.403-1(b) applies.

(1) Based on adequate price competition;

(2) Based on established catalog or market prices of commercial items sold in substantial quantities to the general public; or

(3) Set by law or regulation.

(c) The Contractor shall require the subcontractor to certify in substantially the form prescribed in subsection 15.406-2 of the Federal Acquisition Regulation that, to the best of its knowledge and belief, the data submitted under paragraph (b) above were accurate, complete, and current as of the date of agreement on the negotiated price of the subcontract or subcontract modification.

(d) The Contractor shall insert the substance of this clause, including this paragraph (d), in each subcontract that, when entered into, exceeds the threshold for submission of cost or pricing data at FAR 15.403-4(a)(1).

52.217-5 EVALUATION OF OPTIONS (JUL 1990)

(a) Except when it is determined in accordance with FAR 17.206(b) not to be in the Government's best interests, the Government will evaluate offers for award purposes by adding the total price for all options to the total price for the basic requirement. Evaluation of options will not obligate the Government to exercise the option(s).

(b) The Government may reject an offer as nonresponsive if it is materially unbalanced as to prices for the basic requirement and the option quantities. An offer is unbalanced when it is based on prices significantly less than cost for some work and prices which are significantly overstated for other work.

(End of provision)

52.217-4000 OPTION FOR ADDITIONAL WORK (Construction) (AUG 2000)

1. The Government may require the Contractor to perform the work identified as optional item(s) (SUB-CLIN(s) 0030AA, 0030AB, 0030AC, 0030AD, and 0030AE and CLIN(s) 0031 and 0032) at the price stated in the Schedule. The Contracting Officer may exercise the option(s) by written notice to the Contractor at any time before the required completion date stated in Section 00700 and clause number 52.211-10 I or any extensions thereto. The Contracting Officer shall provide the Contractor notice of the Government's intent to exercise the option at least 30 calendar days) in advance of exercising the option. Notice of intent to exercise the option shall not constitute an

exercise of the option and shall not bind the government to exercise the option. If the Government should exercise the option(s) within 120 calendar days of the required completion date or any extension thereto, the Government shall extend the required contract completion date to 120 calendar days after the date of the exercise of the option.

2. Exercise of the option shall be evidenced on Standard Form 30, citing this Section as the authority for exercising the option. Notice of intent to exercise the option shall be considered to have been given at the earlier of the occurrence of any of the following events: deposit of written notification in the mail, receipt by the Contractor of a facsimile notifying it of the Government's intent to exercise the option, or receipt by the Contractor of an e-mail notifying the Contractor of the Government's intent to exercise the option. The option shall be considered to have been exercised at the time the Government deposits written notification to the Contractor in the mail or, if earlier, at the time written notice is delivered to the Contractor.

52.219-4 NOTICE OF PRICE EVALUATION PREFERENCE FOR HUBZONE SMALL BUSINESS CONCERNS (JAN 1999)

(a) Definition. HUBZone small business concern, as used in this clause, means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration.

(b) Evaluation preference. (1) Offers will be evaluated by adding a factor of 10 percent to the price of all offers, except--

(i) Offers from HUBZone small business concerns that have not waived the evaluation preference;

(ii) Otherwise successful offers from small business concerns;

(iii) Otherwise successful offers of eligible products under the Trade Agreements Act when the dollar threshold for application of the Act is exceeded (see 25.402 of the Federal Acquisition Regulation (FAR)); and

(iv) Otherwise successful offers where application of the factor would be inconsistent with a Memorandum of Understanding or other international agreement with a foreign government.

(2) The factor of 10 percent shall be applied on a line item basis or to any group of items on which award may be made. Other evaluation factors described in the solicitation shall be applied before application of the factor.

(3) A concern that is both a HUBZone small business concern and a small disadvantaged business concern will receive the benefit of both the HUBZone small business price evaluation preference and the small disadvantaged business price evaluation adjustment (see FAR clause 52.219-23). Each applicable price evaluation preference or adjustment shall be calculated independently against an offeror's base offer.

These individual preference amounts shall be added together to arrive at the total evaluated price for that offer.

(c) Waiver of evaluation preference. A HUBZone small business concern may elect to waive the evaluation preference, in which case the factor will be added to its offer for evaluation purposes. The agreements in paragraph (d) of this clause do not apply if the offeror has waived the evaluation preference.

___ Offeror elects to waive the evaluation preference.

(d) Agreement. A HUBZone small business concern agrees that in the performance of the contract, in the case of a contract for

(1) Services (except construction), at least 50 percent of the cost of personnel for contract performance will be spent for employees of the concern or employees of other HUBZone small business concerns;

- (2) Supplies (other than procurement from a nonmanufacturer of such supplies), at least 50 percent of the cost of manufacturing, excluding the cost of materials, will be performed by the concern or other HUBZone small business concerns;
- (3) General construction, at least 15 percent of the cost of the contract performance incurred for personnel will be spent on the concern's employees or the employees of other HUBZone small business concerns; or
- (4) Construction by special trade contractors, at least 25 percent of the cost of the contract performance incurred for personnel will be spent on the concern's employees or the employees of other HUBZone small business concerns.
- (e) A HUBZone joint venture agrees that in the performance of the contract, the applicable percentage specified in paragraph (d) of this clause will be performed by the HUBZone small business participant or participants.
- (f) A HUBZone small business concern nonmanufacturer agrees to furnish in performing this contract only end items manufactured or produced by HUBZone small business manufacturer concerns. This paragraph does not apply in connection with construction or service contracts.

(End of clause)

52.219-8 UTILIZATION OF SMALL BUSINESS CONCERNS (OCT 2000)

- (a) It is the policy of the United States that small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, and women-owned small business concerns shall have the maximum practicable opportunity to participate in performing contracts let by any Federal agency, including contracts and subcontracts for subsystems, assemblies, components, and related services for major systems. It is further the policy of the United States that its prime contractors establish procedures to ensure the timely payment of amounts due pursuant to the terms of their subcontracts with small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, HUBZone small business concerns, small disadvantaged business concerns, and women-owned small business concerns.
- (b) The Contractor hereby agrees to carry out this policy in the awarding of subcontracts to the fullest extent consistent with efficient contract performance. The Contractor further agrees to cooperate in any studies or surveys as may be conducted by the United States Small Business Administration or the awarding agency of the United States as may be necessary to determine the extent of the Contractor's compliance with this clause.

Definitions. As used in this contract--

HUBZone small business concern means a small business concern that appears on the List of Qualified HUBZone Small Business Concerns maintained by the Small Business Administration.

Service-disabled veteran-owned small business concern--

(1) Means a small business concern--

- (i) Not less than 51 percent of which is owned by one or more service-disabled veterans or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more service-disabled veterans; and
- (ii) The management and daily business operations of which are controlled by one or more service-disabled veterans or, in the case of a veteran with permanent and severe disability, the spouse or permanent caregiver of such veteran.

(2) Service-disabled veteran means a veteran, as defined in 38 U.S.C. 101(2), with a disability that is service-connected, as defined in 38 U.S.C. 101(16).

Small business concern means a small business as defined pursuant to Section 3 of the Small Business Act and relevant regulations promulgated pursuant thereto.

Small disadvantaged business concern means a small business concern that represents, as part of its offer that--

- (1) It has received certification as a small disadvantaged business concern consistent with 13 CFR part 124, subpart B;
- (2) No material change in disadvantaged ownership and control has occurred since its certification;
- (3) Where the concern is owned by one or more individuals, the net worth of each individual upon whom the certification is based does not exceed \$750,000 after taking into account the applicable exclusions set forth at 13 CFR 124.104(c)(2); and
- (4) It is identified, on the date of its representation, as a certified small disadvantaged business in the database maintained by the Small Business Administration (PRO-Net).

Veteran-owned small business concern means a small business concern--

- (1) Not less than 51 percent of which is owned by one or more veterans (as defined at 38 U.S.C. 101(2)) or, in the case of any publicly owned business, not less than 51 percent of the stock of which is owned by one or more veterans; and
- (2) The management and daily business operations of which are controlled by one or more veterans.

Women-owned small business concern means a small business concern--

- (1) That is at least 51 percent owned by one or more women, or, in the case of any publicly owned business, at least 51 percent of the stock of which is owned by one or more women; and
- (2) Whose management and daily business operations are controlled by one or more women.
- (d) Contractors acting in good faith may rely on written representations by their subcontractors regarding their status as a small business concern, a veteran-owned small business concern, a service-disabled veteran-owned small business concern, a HUBZone small business concern, a small disadvantaged business concern, or a women-owned small business concern.

(End of clause)

52.219-9 SMALL BUSINESS SUBCONTRACTING PLAN (OCT 2000) ALTERNATE I (OCT 2000)

- (a) This clause does not apply to small business concerns.
- (b) Definitions. As used in this clause--

Commercial item means a product or service that satisfies the definition of commercial item in section 2.101 of the Federal Acquisition Regulation.

Commercial plan means a subcontracting plan (including goals) that covers the offeror's fiscal year and that applies to the entire production of commercial items sold by either the entire company or a portion thereof (e.g., division, plant, or product line).

Individual contract plan means a subcontracting plan that covers the entire contract period (including option periods), applies to a specific contract, and has goals that are based on the offeror's planned subcontracting in support of the specific contract, except that indirect costs incurred for common or joint purposes may be allocated on a prorated basis to the contract.

Master plan means a subcontracting plan that contains all the required elements of an individual contract plan, except goals, and may be incorporated into individual contract plans, provided the master plan has been approved.

Subcontract means any agreement (other than one involving an employer-employee relationship) entered into by a Federal Government prime Contractor or subcontractor calling for supplies or services required for performance of the contract or subcontract.

(c) The apparent low bidder, upon request by the Contracting Officer, shall submit a subcontracting plan, where applicable, that separately addresses subcontracting with small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns. If the bidder is submitting an individual contract plan, the plan must separately address subcontracting with small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns, with a separate part for the basic contract and separate parts for each option (if any). The plan shall be included in and made a part of the resultant contract. The subcontracting plan shall be submitted within the time specified by the Contracting Officer. Failure to submit the subcontracting plan shall make the bidder ineligible for the award of a contract.

(d) The offeror's subcontracting plan shall include the following:

(1) Goals, expressed in terms of percentages of total planned subcontracting dollars, for the use of small business, veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns as subcontractors. Service-disabled veteran-owned small business concerns meet the definition of veteran-owned small business concerns, and offerors may include them within the subcontracting plan goal for veteran-owned small business concerns. A separate goal for service-disabled veteran-owned small business concerns is not required. The offeror shall include all subcontracts that contribute to contract performance, and may include a proportionate share of products and services that are normally allocated as indirect costs.

(2) A statement of--

(i) Total dollars planned to be subcontracted for an individual contract plan; or the offeror's total projected sales, expressed in dollars, and the total value of projected subcontracts to support the sales for a commercial plan;

(ii) Total dollars planned to be subcontracted to small business concerns;

(iii) Total dollars planned to be subcontracted to veteran-owned small business concerns;

(iv) Total dollars planned to be subcontracted to HUBZone small business concerns;

(v) Total dollars planned to be subcontracted to small disadvantaged business concerns; and

(vi) Total dollars planned to be subcontracted to women-owned small business concerns.

(3) A description of the principal types of supplies and services to be subcontracted, and an identification of the types planned for subcontracting to--

(i) Small business concerns;

- (ii) Veteran-owned small business concerns;
- (iii) HUBZone small business concerns;
- (iv) Small disadvantaged business concerns; and
- (v) Women-owned small business concerns.

(4) A description of the method used to develop the subcontracting goals in paragraph (d)(1) of this clause.

(5) A description of the method used to identify potential sources for solicitation purposes (e.g., existing company source lists, the Procurement Marketing and Access Network (PRO-Net) of the Small Business Administration (SBA), veterans service organizations, the National Minority Purchasing Council Vendor Information Service, the Research and Information Division of the Minority Business Development Agency in the Department of Commerce, or small, HUBZone, small disadvantaged, and women-owned small business trade associations). A firm may rely on the information contained in PRO-Net as an accurate representation of a concern's size and ownership characteristics for the purposes of maintaining a small, veteran-owned small, HUBZone small, small disadvantaged, and women-owned small business source list. Use of PRO-Net as its source list does not relieve a firm of its responsibilities (e.g., outreach, assistance, counseling, or publicizing subcontracting opportunities) in this clause.

(6) A statement as to whether or not the offeror included indirect costs in establishing subcontracting goals, and a description of the method used to determine the proportionate share of indirect costs to be incurred with—

- (i) Small business concerns;
- (ii) Veteran-owned small business concerns;
- (iii) HUBZone small business concerns;
- (iv) Small disadvantaged business concerns; and
- (v) Women-owned small business concerns.

(7) The name of the individual employed by the offeror who will administer the offeror's subcontracting program, and a description of the duties of the individual.

(8) A description of the efforts the offeror will make to assure that small business, veteran-owned small business, HUBZone small business, small disadvantaged business and women-owned small business concerns have an equitable opportunity to compete for subcontracts.

(9) Assurances that the offeror will include the clause of this contract entitled "Utilization of Small Business Concerns" in all subcontracts that offer further subcontracting opportunities, and that the offeror will require all subcontractors (except small business concerns) that receive subcontracts in excess of \$500,000 (\$1,000,000 for construction of any public facility) to adopt a subcontracting plan that complies with the requirements of this clause.

(10) Assurances that the offeror will--

- (i) Cooperate in any studies or surveys as may be required;
- (ii) Submit periodic reports so that the Government can determine the extent of compliance by the offeror with the subcontracting plan;
- (iii) Submit Standard Form (SF) 294, Subcontracting Report for Individual Contracts, and/or SF 295, Summary Subcontract Report, in accordance with paragraph (j) of this clause. The reports shall provide information on

subcontract awards to small business concerns, veteran-owned small business concerns, service-disabled veteran-owned small business concerns, small disadvantaged business concerns, women-owned small business concerns, and Historically Black Colleges and Universities and Minority Institutions. Reporting shall be in accordance with the instructions on the forms or as provided in agency regulations.

(iv) Ensure that its subcontractors agree to submit SF 294 and SF 295.

(11) A description of the types of records that will be maintained concerning procedures that have been adopted to comply with the requirements and goals in the plan, including establishing source lists; and a description of the offeror's efforts to locate small business, veteran-owned small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns and award subcontracts to them. The records shall include at least the following (on a plant-wide or company-wide basis, unless otherwise indicated)

(i) Source lists (e.g., PRO-Net), guides, and other data that identify small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns.

(ii) Organizations contacted in an attempt to locate sources that are small business, veteran-owned small business, HUBZone small business, small disadvantaged business, or women-owned small business concerns.

(iii) Records on each subcontract solicitation resulting in an award of more than \$100,000, indicating--

(A) Whether small business concerns were solicited and, if not, why not;

(B) Whether veteran-owned small business concerns were solicited and, if not, why not;

(C) Whether HUBZone small business concerns were solicited and, if not, why not;

(D) Whether small disadvantaged business concerns were solicited and, if not, why not;

(E) Whether women-owned small business concerns were solicited and, if not, why not; and

(F) If applicable, the reason award was not made to a small business concern.

(iv) Records of any outreach efforts to contact--

(A) Trade associations;

(B) Business development organizations;

(C) Conferences and trade fairs to locate small, HUBZone small, small disadvantaged, and women-owned small business sources; and

(D) Veterans service organizations.

(v) Records of internal guidance and encouragement provided to buyers through--

(A) Workshops, seminars, training, etc.; and

(B) Monitoring performance to evaluate compliance with the program's requirements.

(vi) On a contract-by-contract basis, records to support award data submitted by the offeror to the Government, including the name, address, and business size of each subcontractor. Contractors having commercial plans need not comply with this requirement.

(e) In order to effectively implement this plan to the extent consistent with efficient contract performance, the Contractor shall perform the following functions:

(1) Assist small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns by arranging solicitations, time for the preparation of bids, quantities, specifications, and delivery schedules so as to facilitate the participation by such concerns. Where the Contractor's lists of potential small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business subcontractors are excessively long, reasonable effort shall be made to give all such small business concerns an opportunity to compete over a period of time.

(2) Provide adequate and timely consideration of the potentialities of small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business concerns in all "make-or-buy" decisions.

(3) Counsel and discuss subcontracting opportunities with representatives of small business, veteran-owner small business, HUBZone small business, small disadvantaged business, and women-owned small business firms.

(4) Provide notice to subcontractors concerning penalties and remedies for misrepresentations of business status as small, veteran-owner small business, HUBZone small, small disadvantaged, or women-owned small business for the purpose of obtaining a subcontract that is to be included as part or all of a goal contained in the Contractor's subcontracting plan.

(f) A master plan on a plant or division-wide basis that contains all the elements required by paragraph (d) of this clause, except goals, may be incorporated by reference as a part of the subcontracting plan required of the offeror by this clause; provided--

(1) the master plan has been approved, (2) the offeror ensures that the master plan is updated as necessary and provides copies of the approved master plan, including evidence of its approval, to the Contracting Officer, and (3) goals and any deviations from the master plan deemed necessary by the Contracting Officer to satisfy the requirements of this contract are set forth in the individual subcontracting plan.

(g) A commercial plan is the preferred type of subcontracting plan for contractors furnishing commercial items. The commercial plan shall relate to the offeror's planned subcontracting generally, for both commercial and Government business, rather than solely to the Government contract. Commercial plans are also preferred for subcontractors that provide commercial items under a prime contract, whether or not the prime contractor is supplying a commercial item.

(h) Prior compliance of the offeror with other such subcontracting plans under previous contracts will be considered by the Contracting Officer in determining the responsibility of the offeror for award of the contract.

(i) The failure of the Contractor or subcontractor to comply in good faith with (1) the clause of this contract entitled "Utilization Of Small Business Concerns," or (2) an approved plan required by this clause, shall be a material breach of the contract.

(j) The Contractor shall submit the following reports:

(1) Standard Form 294, Subcontracting Report for Individual Contracts. This report shall be submitted to the Contracting Officer semiannually and at contract completion. The report covers subcontract award data related to this contract. This report is not required for commercial plans.

(2) Standard Form 295, Summary Subcontract Report. This report encompasses all of the contracts with the awarding agency. It must be submitted semi-annually for contracts with the Department of Defense and annually for contracts with civilian agencies. If the reporting activity is covered by a commercial plan, the reporting activity must report annually all subcontract awards under that plan. All reports submitted at the close of each fiscal year (both individual and commercial plans) shall include a breakout, in the Contractor's format, of subcontract awards, in whole dollars, to small disadvantaged business concerns by North American Industry Classification System

(NAICS) Industry Subsector. For a commercial plan, the Contractor may obtain from each of its subcontractors a predominant NAICS Industry Subsector and report all awards to that subcontractor under its predominant NAICS Industry Subsector.

(End of clause)

52.219-16 LIQUIDATED DAMAGES-SUBCONTRACTING PLAN (JAN 1999)

(a) Failure to make a good faith effort to comply with the subcontracting plan, as used in this clause, means a willful or intentional failure to perform in accordance with the requirements of the subcontracting plan approved under the clause in this contract entitled "Small Business Subcontracting Plan," or willful or intentional action to frustrate the plan.

(b) Performance shall be measured by applying the percentage goals to the total actual subcontracting dollars or, if a commercial plan is involved, to the pro rata share of actual subcontracting dollars attributable to Government contracts covered by the commercial plan. If, at contract completion or, in the case of a commercial plan, at the close of the fiscal year for which the plan is applicable, the Contractor has failed to meet its subcontracting goals and the Contracting Officer decides in accordance with paragraph (c) of this clause that the Contractor failed to make a good faith effort to comply with its subcontracting plan, established in accordance with the clause in this contract entitled "Small Business Subcontracting Plan," the Contractor shall pay the Government liquidated damages in an amount stated. The amount of probable damages attributable to the Contractor's failure to comply shall be an amount equal to the actual dollar amount by which the Contractor failed to achieve each subcontract goal.

(c) Before the Contracting Officer makes a final decision that the Contractor has failed to make such good faith effort, the Contracting Officer shall give the Contractor written notice specifying the failure and permitting the Contractor to demonstrate what good faith efforts have been made and to discuss the matter. Failure to respond to the notice may be taken as an admission that no valid explanation exists. If, after consideration of all the pertinent data, the Contracting Officer finds that the Contractor failed to make a good faith effort to comply with the subcontracting plan, the Contracting Officer shall issue a final decision to that effect and require that the Contractor pay the Government liquidated damages as provided in paragraph (b) of this clause.

(d) With respect to commercial plans, the Contracting Officer who approved the plan will perform the functions of the Contracting Officer under this clause on behalf of all agencies with contracts covered by the commercial plan.

(e) The Contractor shall have the right of appeal, under the clause in this contract entitled Disputes, from any final decision of the Contracting Officer.

(f) Liquidated damages shall be in addition to any other remedies that the Government may have.

(End of clause)

52.222-1 NOTICE TO THE GOVERNMENT OF LABOR DISPUTES (FEB 1997)

If the Contractor has knowledge that any actual or potential labor dispute is delaying or threatens to delay the timely performance of this contract, the Contractor shall immediately give notice, including all relevant information, to the Contracting Officer.

52.222-3 CONVICT LABOR (AUG 1996)

The Contractor agrees not to employ in the performance of this contract any person undergoing a sentence of imprisonment which has been imposed by any court of a State, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or the Trust Territory of the Pacific Islands. This limitation, however, shall not prohibit the employment by the Contractor in the performance of this contract of persons on parole or probation to work at paid employment during the term of their sentence or persons who have been pardoned or who have served their terms. Nor shall it prohibit the employment by the Contractor in the performance of this contract of persons confined for violation of the laws of any of the States, the District of Columbia, the Commonwealth of Puerto Rico, the Virgin Islands, Guam, American Samoa, the Commonwealth of the Northern Mariana Islands, or the Trust Territory of the Pacific Islands who are authorized to work at paid employment in the community under the laws of such jurisdiction, if-

- (a)(1) The worker is paid or is in an approved work training program on a voluntary basis;
 - (2) Representatives of local union central bodies or similar labor union organizations have been consulted;
 - (3) Such paid employment will not result in the displacement of employed workers, or be applied in skills, crafts, or trades in which there is a surplus of available gainful labor in the locality, or impair existing contracts for services; and
 - (4) The rates of pay and other conditions of employment will not be less than those paid or provided for work of a similar nature in the locality in which the work is being performed; and
- (b) The Attorney General of the United States has certified that the work-release laws or regulations of the jurisdiction involved are in conformity with the requirements of Executive Order 11755, as amended by Executive Orders 12608 and 12943.

(End of clause)

52.222-4 CONTRACT WORK HOURS AND SAFETY STANDARDS ACT - OVERTIME COMPENSATION. (SEP 2000)

- (a) Overtime requirements. No Contractor or subcontractor employing laborers or mechanics (see Federal Acquisition Regulation 22.300) shall require or permit them to work over 40 hours in any workweek unless they are paid at least 1 and 1/2 times the basic rate of pay for each hour worked over 40 hours.
- (b) Violation; liability for unpaid wages; liquidated damages. The responsible Contractor and subcontractor are liable for unpaid wages if they violate the terms in paragraph (a) of this clause. In addition, the Contractor and subcontractor are liable for liquidated damages payable to the Government. The Contracting Officer will assess liquidated damages at the rate of \$10 per affected employee for each calendar day on which the employer required or permitted the employee to work in excess of the standard workweek of 40 hours without paying overtime wages required by the Contract Work Hours and Safety Standards Act.
- (c) Withholding for unpaid wages and liquidated damages. The Contracting Officer will withhold from payments due under the contract sufficient funds required to satisfy any Contractor or subcontractor liabilities for unpaid wages and liquidated damages. If amounts withheld under the contract are insufficient to satisfy Contractor or subcontractor liabilities, the Contracting Officer will withhold payments from other Federal or Federally assisted contracts held by the same Contractor that are subject to the Contract Work Hours and Safety Standards Act.

(d) Payrolls and basic records.

(1) The Contractor and its subcontractors shall maintain payrolls and basic payroll records for all laborers and mechanics working on the contract during the contract and shall make them available to the Government until 3 years after contract completion. The records shall contain the name and address of each employee, social security number, labor classifications, hourly rates of wages paid, daily and weekly number of hours worked, deductions made, and actual wages paid. The records need not duplicate those required for construction work by Department of Labor regulations at 29 CFR 5.5(a)(3) implementing the Davis-Bacon Act.

(2) The Contractor and its subcontractors shall allow authorized representatives of the Contracting Officer or the Department of Labor to inspect, copy, or transcribe records maintained under paragraph (d)(1) of this clause. The Contractor or subcontractor also shall allow authorized representatives of the Contracting Officer or Department of Labor to interview employees in the workplace during working hours.

(e) Subcontracts. The Contractor shall insert the provisions set forth in paragraphs (a) through (d) of this clause in subcontracts exceeding \$100,000 and require subcontractors to include these provisions in any lower tier subcontracts. The Contractor shall be responsible for compliance by any subcontractor or lower-tier subcontractor with the provisions set forth in paragraphs (a) through (d) of this clause.

(End of clause)

52.222-6 DAVIS-BACON ACT (FEB 1995)

(a) All laborers and mechanics employed or working upon the site of the work will be paid unconditionally and not less often than once a week, and without subsequent deduction or rebate on any account (except such payroll deductions as are permitted by regulations issued by the Secretary of Labor under the Copeland Act (29 CFR Part 3), the full amount of wages and bona fide fringe benefits (or cash equivalents thereof) due at time of payment computed at rates not less than those contained in the wage determination of the Secretary of Labor which is attached hereto and made a part hereof, regardless of any contractual relationship which may be alleged to exist between the Contractor and such laborers and mechanics. Contributions made or costs reasonably anticipated for bona fide fringe benefits under section 1(b)(2) of the Davis-Bacon Act on behalf of laborers or mechanics are considered wages paid to such laborers or mechanics, subject to the provisions of paragraph (d) of this clause; also, regular contributions made or costs incurred for more than a weekly period (but not less often than quarterly) under plans, funds, or programs which cover the particular weekly period, are deemed to be constructively made or incurred during such period. Such laborers and mechanics shall be paid not less than the appropriate wage rate and fringe benefits in the wage determination for the classification of work actually performed, without regard to skill, except as provided in the clause entitled Apprentices and Trainees. Laborers or mechanics performing work in more than one classification may be compensated at the rate specified for each classification for the time actually worked therein; provided, That the employer's payroll records accurately set forth the time spent in each classification in which work is performed. The wage determination (including any additional classifications and wage rates conformed under paragraph (b) of this clause) and the Davis-Bacon poster (WH-1321) shall be posted at all times by the Contractor and its subcontractors at the site of the work in a prominent and accessible place where it can be easily seen by the workers.

(b)(1) The Contracting Officer shall require that any class of laborers or mechanics which is not listed in the wage determination and which is to be employed under the contract shall be classified in conformance with the wage determination. The Contracting Officer shall approve an additional classification and wage rate and fringe benefits therefor only when all the following criteria have been met:

(i) The work to be performed by the classification requested is not performed by a classification in the wage determination.

(ii) The classification is utilized in the area by the construction industry.

(iii) The proposed wage rate, including any bona fide fringe benefits, bears a reasonable relationship to the wage rates contained in the wage determination.

(2) If the Contractor and the laborers and mechanics to be employed in the classification (if known), or their representatives, and the Contracting Officer agree on the classification and wage rate (including the amount designated for fringe benefits, where appropriate), a report of the action taken shall be sent by the Contracting Officer to the Administrator of the Wage and Hour Division, Employment Standards Administration, U.S. Department of Labor, Washington, DC 20210. The Administrator or an authorized representative will approve, modify, or disapprove every additional classification action within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(3) In the event the Contractor, the laborers or mechanics to be employed in the classification, or their representatives, and the Contracting Officer do not agree on the proposed classification and wage rate (including the amount designated for fringe benefits, where appropriate), the Contracting Officer shall refer the questions, including the views of all interested parties and the recommendation of the Contracting Officer, to the Administrator of the Wage and Hour Division for determination. The Administrator, or an authorized representative, will issue a determination within 30 days of receipt and so advise the Contracting Officer or will notify the Contracting Officer within the 30-day period that additional time is necessary.

(4) The wage rate (including fringe benefits, where appropriate) determined pursuant to subparagraphs (b)(2) and (b)(3) of this clause shall be paid to all workers performing work in the classification under this contract from the first day on which work is performed in the classification.

(c) Whenever the minimum wage rate prescribed in the contract for a class of laborers or mechanics includes a fringe benefit which is not expressed as an hourly rate, the Contractor shall either pay the benefit as stated in the wage determination or shall pay another bona fide fringe benefit or an hourly cash equivalent thereof.

(d) If the Contractor does not make payments to a trustee or other third person, the Contractor may consider as part of the wages of any laborer or mechanic the amount of any costs reasonably anticipated in providing bona fide fringe benefits under a plan or program; provided, That the Secretary of Labor has found, upon the written request of the Contractor, that the applicable standards of the Davis -Bacon Act have been met. The Secretary of Labor may require the Contractor to set aside in a separate account assets for the meeting of obligations under the plan or program.

52.222-7 WITHHOLDING OF FUNDS (FEB 1988)

The Contracting Officer shall, upon his or her own action or upon written request of an authorized representative of the Department of Labor, withhold or cause to be withheld from the Contractor under this contract or any other Federal contract with the same Prime Contractor, or any other Federally assisted contract subject to Davis -Bacon prevailing wage requirements, which is held by the same Prime Contractor, so much of the accrued payments or advances as may be considered necessary to pay laborers and mechanics, including apprentices, trainees, and helpers, employed by the Contractor or any subcontractor the full amount of wages required by the contract. In the event of failure to pay any laborer or mechanic, including any apprentice, trainee, or helper, employed or working on the site of the work, all or part of the wages required by the contract, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment, advance, or guarantee of funds until such violations have ceased.

52.222-8 PAYROLLS AND BASIC RECORDS (FEB 1988)

(a) Payrolls and basic records relating thereto shall be maintained by the Contractor during the course of the work and preserved for a period of 3 years thereafter for all laborers and mechanics working at the site of the work. Such records shall contain the name, address, and social security number of each such worker, his or her correct classification, hourly rates of wages paid (including rates of contributions or costs anticipated for bona fide fringe benefits or cash equivalents thereof of the types described in section 1(b)(2)(B) of the Davis -Bacon Act), daily and weekly number of hours worked, deductions made, and actual wages paid. Whenever the Secretary of Labor has found, under paragraph (d) of the clause entitled Davis -Bacon Act, that the wages of any laborer or mechanic include the amount of any costs reasonably anticipated in providing benefits under a plan or program described in section 1(b)(2)(B) of the Davis -Bacon Act, the Contractor shall maintain records which show that the commitment to provide such benefits is enforceable, that the plan or program is financially responsible, and that the plan or program has been communicated in writing to the laborers or mechanics affected, and records which show the costs anticipated or the actual cost incurred in providing such benefits. Contractors employing apprentices or trainees under approved programs shall maintain written evidence of the registration of apprenticeship programs and certification of trainee programs, the registration of the apprentices and trainees, and the ratios and wage rates prescribed in the applicable programs.

(b)(1) The Contractor shall submit weekly for each week in which any contract work is performed a copy of all payrolls to the Contracting Officer. The payrolls submitted shall set out accurately and completely all of the information required to be maintained under paragraph (a) of this clause. This information may be submitted in any form desired. Optional Form WH-347 (Federal Stock Number 029-005-00014-1) is available for this purpose and may be purchased from the Superintendent of Documents, U.S. Government Printing Office, Washington, DC 20402. The Prime Contractor is responsible for the submission of copies of payrolls by all subcontractors.

(2) Each payroll submitted shall be accompanied by a "Statement of Compliance," signed by the Contractor or subcontractor or his or her agent who pays or supervises the payment of the persons employed under the contract and shall certify--

(i) That the payroll for the payroll period contains the information required to be maintained under paragraph (a) of this clause and that such information is correct and complete;

(ii) That each laborer or mechanic (including each helper, apprentice, and trainee) employed on the contract during the payroll period has been paid the full weekly wages earned, without rebate, either directly or indirectly, and that no deductions have been made either directly or indirectly from the full wages earned, other than permissible deductions as set forth in the Regulations, 29 CFR Part 3; and

(iii) That each laborer or mechanic has been paid not less than the applicable wage rates and fringe benefits or cash equivalents for the classification of work performed, as specified in the applicable wage determination incorporated into the contract.

(3) The weekly submission of a properly executed certification set forth on the reverse side of Optional Form WH-347 shall satisfy the requirement for submission of the "Statement of Compliance" required by subparagraph (b)(2) of this clause.

(4) The falsification of any of the certifications in this clause may subject the Contractor or subcontractor to civil or criminal prosecution under Section 1001 of Title 18 and Section 3729 of Title 31 of the United States Code.

(c) The Contractor or subcontractor shall make the records required under paragraph (a) of this clause available for inspection, copying, or transcription by the Contracting Officer or authorized representatives of the Contracting Officer or the Department of Labor. The Contractor or subcontractor shall permit the Contracting Officer or representatives of the Contracting Officer or the Department of Labor to interview employees during working hours

on the job. If the Contractor or subcontractor fails to submit required records or to make them available, the Contracting Officer may, after written notice to the Contractor, take such action as may be necessary to cause the suspension of any further payment. Furthermore, failure to submit the required records upon request or to make such records available may be grounds for debarment action pursuant to 29 CFR 5.12.

52.222-9 APPRENTICES AND TRAINEES (FEB 1988)

(a) Apprentices. Apprentices will be permitted to work at less than the predetermined rate for the work they performed when they are employed pursuant to and individually registered in a bona fide apprenticeship program registered with the U.S. Department of Labor, Employment and Training Administration, Bureau of Apprenticeship and Training, or with a State Apprenticeship Agency recognized by the Bureau, or if a person is employed in his or her first 90 days of probationary employment as an apprentice in such an apprenticeship program, who is not individually registered in the program, but who has been certified by the Bureau of Apprenticeship and Training or a State Apprenticeship Agency (where appropriate) to be eligible for probationary employment as an apprentice. The allowable ratio of apprentices to journeymen on the job site in any craft classification shall not be greater than the ratio permitted to the Contractor as to the entire work force under the registered program. Any worker listed on a payroll at an apprentice wage rate, who is not registered or otherwise employed as stated in this paragraph, shall be paid not less than the applicable wage determination for the classification of work actually performed. In addition, any apprentice performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate on the wage determination for the work actually performed. Where a contractor is performing construction on a project in a locality other than that in which its program is registered, the ratios and wage rates (expressed in percentages of the journeyman's hourly rate) specified in the Contractor's or subcontractor's registered program shall be observed. Every apprentice must be paid at not less than the rate specified in the registered program for the apprentice's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Apprentices shall be paid fringe benefits in accordance with the provisions of the apprenticeship program. If the apprenticeship program does not specify fringe benefits, apprentices must be paid the full amount of fringe benefits listed on the wage determination for the applicable classification. If the Administrator determines that a different practice prevails for the applicable apprentice classification, fringes shall be paid in accordance with that determination. In the event the Bureau of Apprenticeship and Training, or a State Apprenticeship Agency recognized by the Bureau, withdraws approval of an apprenticeship program, the Contractor will no longer be permitted to utilize apprentices at less than the applicable predetermined rate for the work performed until an acceptable program is approved.

(b) Trainees. Except as provided in 29 CFR 5.16, trainees will not be permitted to work at less than the predetermined rate for the work performed unless they are employed pursuant to and individually registered in a program which has received prior approval, evidenced by formal certification by the U.S. Department of Labor, Employment and Training Administration. The ratio of trainees to journeymen on the job site shall not be greater than permitted under the plan approved by the Employment and Training Administration. Every trainee must be paid at not less than the rate specified in the approved program for the trainee's level of progress, expressed as a percentage of the journeyman hourly rate specified in the applicable wage determination. Trainees shall be paid fringe benefits in accordance with the provisions of the trainee program. If the trainee program does not mention fringe benefits, trainees shall be paid the full amount of fringe benefits listed in the wage determination unless the Administrator of the Wage and Hour Division determines that there is an apprenticeship program associated with the corresponding journeyman wage rate in the wage determination which provides for less than full fringe benefits for apprentices. Any employee listed on the payroll at a trainee rate who is not registered and participating in a training plan approved by the Employment and Training Administration shall be paid not less than the applicable wage rate in the wage determination for the classification of work actually performed. In addition, any trainee performing work on the job site in excess of the ratio permitted under the registered program shall be paid not less than the applicable wage rate in the wage determination for the work actually performed. In the event the Employment and Training Administration withdraws approval of a training program, the Contractor will no longer be permitted to utilize trainees at less than the applicable predetermined rate for the work performed until an acceptable program is

approved.

(c) Equal employment opportunity. The utilization of apprentices, trainees, and journeymen under this clause shall be in conformity with the equal employment opportunity requirements of Executive Order 11246, as amended, and 29 CFR Part 30.

52.222-10 COMPLIANCE WITH COPELAND ACT REQUIREMENTS (FEB 1988)

The Contractor shall comply with the requirements of 29 CFR Part 3, which are hereby incorporated by reference in this contract.

52.222-11 SUBCONTRACTS (LABOR STANDARDS (FEB 1988)

(a) The Contractor or subcontractor shall insert in any subcontracts the clauses entitled Davis -Bacon Act, Contract Work Hours and Safety Standards Act-Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Withholding of Funds, Subcontracts (Labor Standards), Contract Termination-Debarment, Disputes Concerning Labor Standards, Compliance with Davis -Bacon and Related Act Regulations, and Certification of Eligibility, and such other clauses as the Contracting Officer may, by appropriate instructions, require, and also a clause requiring subcontractors to include these clauses in any lower tier subcontracts. The Prime Contractor shall be responsible for compliance by any subcontractor or lower tier subcontractor with all the contract clauses cited in this paragraph.

(b)(1) Within 14 days after award of the contract, the Contractor shall deliver to the Contracting Officer a completed Statement and Acknowledgment Form (SF 1413) for each subcontract, including the subcontractor's signed and dated acknowledgment that the clauses set forth in paragraph (a) of this clause have been included in the subcontract.

(2) Within 14 days after the award of any subsequently awarded subcontract the Contractor shall deliver to the Contracting Officer an updated completed SF 1413 for such additional subcontract.

52.222-12 CONTRACT TERMINATION--DEBARMENT (FEB 1988)

A breach of the contract clauses entitled Davis -Bacon Act, Contract Work Hours and Safety Standards Act--Overtime Compensation, Apprentices and Trainees, Payrolls and Basic Records, Compliance with Copeland Act Requirements, Subcontracts (Labor Standards), Compliance with Davis-Bacon and Related Act Regulations, or Certification of Eligibility may be grounds for termination of the contract, and for debarment as a Contractor and subcontractor as provided in 29 CFR 5.12.

52.222-13 COMPLIANCE WITH DAVIS-BACON AND RELATED ACT REGULATIONS (FEB 1988)

All rulings and interpretations of the Davis -Bacon and Related Acts contained in 29 CFR Parts 1, 3, and 5 are hereby incorporated by reference in this contract.

52.222-14 *DISPUTES CONCERNING LABOR STANDARDS (FEB 1988)*

The United States Department of Labor has set forth in 29 CFR Parts 5, 6, and 7 procedures for resolving disputes concerning labor standards requirements. Such disputes shall be resolved in accordance with those procedures and not the Disputes clause of this contract. Disputes within the meaning of this clause include disputes between the Contractor (or any of its subcontractors) and the contracting agency, the U.S. Department of Labor, or the employees or their representatives.

52.222-15 *CERTIFICATION OF ELIGIBILITY (FEB 1988)*

- (a) By entering into this contract, the Contractor certifies that neither it (nor he or she) nor any person or firm who has an interest in the Contractor's firm is a person or firm ineligible to be awarded Government contracts by virtue of section 3(a) of the Davis -Bacon Act or 29 CFR 5.12(a)(1).
- (b) No part of this contract shall be subcontracted to any person or firm ineligible for award of a Government contract by virtue of section 3(a) of the Davis -Bacon Act or 29 CFR 5.12(a)(1).
- (c) The penalty for making false statements is prescribed in the U.S. Criminal Code, 18 U.S.C. 1001.

52.222-21 *PROHIBITION OF SEGREGATED FACILITIES (FEB 1999)*

- (a) Segregated facilities, as used in this clause, means any waiting rooms, work areas, rest rooms and wash rooms, restaurants and other eating areas, time clocks, locker rooms and other storage or dressing areas, parking lots, drinking fountains, recreation or entertainment areas, transportation, and housing facilities provided for employees, that are segregated by explicit directive or are in fact segregated on the basis of race, color, religion, sex, or national origin because of written or oral policies or employee custom. The term does not include separate or single-user rest rooms or necessary dressing or sleeping areas provided to assure privacy between the sexes.
- (b) The Contractor agrees that it does not and will not maintain or provide for its employees any segregated facilities at any of its establishments, and that it does not and will not permit its employees to perform their services at any location under its control where segregated facilities are maintained. The Contractor agrees that a breach of this clause is a violation of the Equal Opportunity clause in this contract.
- (c) The Contractor shall include this clause in every subcontract and purchase order that is subject to the Equal Opportunity clause of this contract.

(End of clause)

52.222-23 NOTICE OF REQUIREMENT FOR AFFIRMATIVE ACTION TO ENSURE EQUAL EMPLOYMENT OPPORTUNITY FOR CONSTRUCTION (FEB 1999)

(a) The offeror's attention is called to the Equal Opportunity clause and the Affirmative Action Compliance Requirements for Construction clause of this solicitation.

(b) The goals for minority and female participation, expressed in percentage terms for the Contractor's aggregate workforce in each trade on all construction work in the covered area, are as follows:

Goals for minority participation for each trade	Goals for female participation for each trade
1.2%	6.9%

These goals are applicable to all the Contractor's construction work performed in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, the Contractor shall apply the goals established for the geographical area where the work is actually performed. Goals are published periodically in the Federal Register in notice form, and these notices may be obtained from any Office of Federal Contract Compliance Programs office.

(c) The Contractor's compliance with Executive Order 11246, as amended, and the regulations in 41 CFR 60-4 shall be based on (1) its implementation of the Equal Opportunity clause, (2) specific affirmative action obligations required by the clause entitled "Affirmative Action Compliance Requirements for Construction," and (3) its efforts to meet the goals. The hours of minority and female employment and training must be substantially uniform throughout the length of the contract, and in each trade. The Contractor shall make a good faith effort to employ minorities and women evenly on each of its projects. The transfer of minority or female employees or trainees from Contractor to Contractor, or from project to project, for the sole purpose of meeting the Contractor's goals shall be a violation of the contract, Executive Order 11246, as amended, and the regulations in 41 CFR 60-4. Compliance with the goals will be measured against the total work hours performed.

(d) The Contractor shall provide written notification to the Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, within 10 working days following award of any construction subcontract in excess of \$10,000 at any tier for construction work under the contract resulting from this solicitation. The notification shall list the --

- (1) Name, address, and telephone number of the subcontractor;
- (2) Employer's identification number of the subcontractor;
- (3) Estimated dollar amount of the subcontract;
- (4) Estimated starting and completion dates of the subcontract; and
- (5) Geographical area in which the subcontract is to be performed.

(e) As used in this Notice, and in any contract resulting from this solicitation, the "covered area" is

[Contracting Officer shall insert description of the geographical areas where the contract is to be performed, giving the State, county, and city].

52.222-26 EQUAL OPPORTUNITY (FEB 1999)

(a) If, during any 12-month period (including the 12 months preceding the award of this contract), the Contractor has been or is awarded nonexempt Federal contracts and/or subcontracts that have an aggregate value in excess of \$10,000, the Contractor shall comply with subparagraphs (b)(1) through (11) of this clause. Upon request, the Contractor shall provide information necessary to determine the applicability of this clause.

(b) During performing this contract, the Contractor agrees as follows:

(1) The Contractor shall not discriminate against any employee or applicant for employment because of race, color, religion, sex, or national origin. However, it shall not be a violation of this clause for the Contractor to extend a publicly announced preference in employment to Indians living on or near an Indian reservation, in connection with employment opportunities on or near an Indian reservation, as permitted by 41 CFR 60-1.5.

(2) The Contractor shall take affirmative action to ensure that applicants are employed, and that employees are treated during employment, without regard to their race, color, religion, sex, or national origin. This shall include, but not be limited to, (i) employment, (ii) upgrading, (iii) demotion, (iv) transfer, (v) recruitment or recruitment advertising, (vi) layoff or termination, (vii) rates of pay or other forms of compensation, and (viii) selection for training, including apprenticeship.

(3) The Contractor shall post in conspicuous places available to employees and applicants for employment the notices to be provided by the Contracting Officer that explain this clause.

(4) The Contractor shall, in all solicitations or advertisements for employees placed by or on behalf of the Contractor, state that all qualified applicants will receive consideration for employment without regard to race, color, religion, sex, or national origin.

(5) The Contractor shall send, to each labor union or representative of workers with which it has a collective bargaining agreement or other contract or understanding, the notice to be provided by the Contracting Officer advising the labor union or workers' representative of the Contractor's commitments under this clause, and post copies of the notice in conspicuous places available to employees and applicants for employment.

(6) The Contractor shall comply with Executive Order 11246, as amended, and the rules, regulations, and orders of the Secretary of Labor.

(7) The Contractor shall furnish to the contracting agency all information required by Executive Order 11246, as amended, and by the rules, regulations, and orders of the Secretary of Labor. The Contractor shall also file Standard Form 100 (EEO-1), or any successor form, as prescribed in 41 CFR part 60-1. Unless the Contractor has filed within the 12 months preceding the date of contract award, the Contractor shall, within 30 days after contract award, apply to either the regional Office of Federal Contract Compliance Programs (OFCCP) or the local office of the Equal Employment Opportunity Commission for the necessary forms.

(8) The Contractor shall permit access to its premises, during normal business hours, by the contracting agency or the OFCCP for the purpose of conducting on-site compliance evaluations and complaint investigations. The Contractor shall permit the Government to inspect and copy any books, accounts, records (including computerized records), and other material that may be relevant to the matter under investigation and pertinent to compliance with Executive Order 11246, as amended, and rules and regulations that implement the Executive Order.

(9) If the OFCCP determines that the Contractor is not in compliance with this clause or any rule, regulation, or order of the Secretary of Labor, this contract may be canceled, terminated, or suspended in whole or in part and the Contractor may be declared ineligible for further Government contracts, under the procedures authorized in Executive Order 11246, as amended. In addition, sanctions may be imposed and remedies invoked against the

Contractor as provided in Executive Order 11246, as amended; in the rules, regulations, and orders of the Secretary of Labor; or as otherwise provided by law.

(10) The Contractor shall include the terms and conditions of subparagraphs (b)(1) through (11) of this clause in every subcontract or purchase order that is not exempted by the rules, regulations, or orders of the Secretary of Labor issued under Executive Order 11246, as amended, so that these terms and conditions will be binding upon each subcontractor or vendor.

(11) The Contractor shall take such action with respect to any subcontract or purchase order as the contracting officer may direct as a means of enforcing these terms and conditions, including sanctions for noncompliance; provided, that if the Contractor becomes involved in, or is threatened with, litigation with a subcontractor or vendor as a result of any direction, the Contractor may request the United States to enter into the litigation to protect the interests of the United States.

(c) Notwithstanding any other clause in this contract, disputes relative to this clause will be governed by the procedures in 41 CFR 60-1.1.

52.222-27 AFFIRMATIVE ACTION COMPLIANCE REQUIREMENTS FOR CONSTRUCTION (FEB 1999)

(a) Definitions. "Covered area," as used in this clause, means the geographical area described in the solicitation for this contract.

"Deputy Assistant Secretary," as used in this clause, means Deputy Assistant Secretary for Federal Contract Compliance, U.S. Department of Labor, or a designee.

"Employer's identification number," as used in this clause, means the Federal Social Security number used on the employer's quarterly federal tax return, U.S. Treasury Department Form 941.

"Minority," as used in this clause, means--

(1) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).

(2) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, the Indian Subcontinent, or the Pacific Islands);

(3) Black (all persons having origins in any of the black African racial groups not of Hispanic origin); and

(4) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American, or other Spanish culture or origin, regardless of race).

(b) If the Contractor, or a subcontractor at any tier, subcontracts a portion of the work involving any construction trade, each such subcontract in excess of \$10,000 shall include this clause and the Notice containing the goals for minority and female participation stated in the solicitation for this contract.

(c) If the Contractor is participating in a Hometown Plan (41 CFR 60-4) approved by the U.S. Department of Labor in a covered area, either individually or through an association, its affirmative action obligations on all work in the plan area (including goals) shall comply with the plan for those trades that have unions participating in the plan. Contractors must be able to demonstrate participation in, and compliance with, the provisions of the plan. Each Contractor or subcontractor participating in an approved plan is also required to comply with its obligations under

the Equal Opportunity clause, and to make a good faith effort to achieve each goal under the plan in each trade in which it has employees. The overall good-faith performance by other Contractors or subcontractors toward a goal in an approved plan does not excuse any Contractor's or subcontractor's failure to make good-faith efforts to achieve the plan's goals.

(d) The Contractor shall implement the affirmative action procedures in subparagraphs (g)(1) through (16) of this clause. The goals stated in the solicitation for this contract are expressed as percentages of the total hours of employment and training of minority and female utilization that the Contractor should reasonably be able to achieve in each construction trade in which it has employees in the covered area. If the Contractor performs construction work in a geographical area located outside of the covered area, it shall apply the goals established for the geographical area where that work is actually performed. The Contractor is expected to make substantially uniform progress toward its goals in each craft.

(e) Neither the terms and conditions of any collective bargaining agreement, nor the failure by a union with which the Contractor has a collective bargaining agreement, to refer minorities or women shall excuse the Contractor's obligations under this clause, Executive Order 11246, as amended, or the regulations thereunder.

(f) In order for the nonworking training hours of apprentices and trainees to be counted in meeting the goals, apprentices and trainees must be employed by the Contractor during the training period, and the Contractor must have made a commitment to employ the apprentices and trainees at the completion of their training, subject to the availability of employment opportunities. Trainees must be trained pursuant to training programs approved by the U.S. Department of Labor.

(g) The Contractor shall take affirmative action to ensure equal employment opportunity. The evaluation of the Contractor's compliance with this clause shall be based upon its effort to achieve maximum results from its actions. The Contractor shall document these efforts fully and implement affirmative action steps at least as extensive as the following:

(1) Ensure a working environment free of harassment, intimidation, and coercion at all sites and in all facilities where the Contractor's employees are assigned to work. The Contractor, if possible, will assign two or more women to each construction project. The Contractor shall ensure that foremen, superintendents, and other onsite supervisory personnel are aware of and carry out the Contractor's obligation to maintain such a working environment, with specific attention to minority or female individuals working at these sites or facilities.

(2) Establish and maintain a current list of sources for minority and female recruitment. Provide written notification to minority and female recruitment sources and community organizations when the Contractor or its unions have employment opportunities available, and maintain a record of the organizations' responses.

(3) Establish and maintain a current file of the names, addresses, and telephone numbers of each minority and female off-the-street applicant, referrals of minorities or females from unions, recruitment sources, or community organizations, and the action taken with respect to each individual. If an individual was sent to the union hiring hall for referral and not referred back to the Contractor by the union or, if referred back, not employed by the Contractor, this shall be documented in the file, along with whatever additional actions the Contractor may have taken.

(4) Immediately notify the Deputy Assistant Secretary when the union or unions with which the Contractor has a collective bargaining agreement has not referred back to the Contractor a minority or woman sent by the Contractor, or when the Contractor has other information that the union referral process has impeded the Contractor's efforts to meet its obligations.

(5) Develop on-the-job training opportunities and/or participate in training programs for the area that expressly include minorities and women, including upgrading programs and apprenticeship and trainee programs relevant to the Contractor's employment needs, especially those programs funded or approved by the Department of Labor. The Contractor shall provide notice of these programs to the sources compiled under subparagraph (g)(2) of this clause.

(6) Disseminate the Contractor's equal employment policy by--

(i) Providing notice of the policy to unions and to training, recruitment, and outreach programs, and requesting their cooperation in assisting the Contractor in meeting its contract obligations;

(ii) Including the policy in any policy manual and in collective bargaining agreements;

(iii) Publicizing the policy in the company newspaper, annual report, etc.;

(iv) Reviewing the policy with all management personnel and with all minority and female employees at least once a year; and

(v) Posting the policy on bulletin boards accessible to employees at each location where construction work is performed.

(7) Review, at least annually, the Contractor's equal employment policy and affirmative action obligations with all employees having responsibility for hiring, assignment, layoff, termination, or other employment decisions. Conduct review of this policy with all on-site supervisory personnel before initiating construction work at a job site. A written record shall be made and maintained identifying the time and place of these meetings, persons attending, subject matter discussed, and disposition of the subject matter.

(8) Disseminate the Contractor's equal employment policy externally by including it in any advertising in the news media, specifically including minority and female news media. Provide written notification to, and discuss this policy with, other Contractors and subcontractors with which the Contractor does or anticipates doing business.

(9) Direct recruitment efforts, both oral and written, to minority, female, and community organizations, to schools with minority and female students, and to minority and female recruitment and training organizations serving the Contractor's recruitment area and employment needs. Not later than 1 month before the date for acceptance of applications for apprenticeship or training by any recruitment source, send written notification to organizations such as the above, describing the openings, screening procedures, and tests to be used in the selection process.

(10) Encourage present minority and female employees to recruit minority persons and women. Where reasonable, provide after-school, summer, and vacation employment to minority and female youth both on the site and in other areas of the Contractor's workforce.

(11) Validate all tests and other selection requirements where required under 41 CFR 60-3.

(12) Conduct, at least annually, an inventory and evaluation at least of all minority and female personnel for promotional opportunities. Encourage these employees to seek or to prepare for, through appropriate training, etc., opportunities for promotion.

(13) Ensure that seniority practices, job classifications, work assignments, and other personnel practices do not have a discriminatory effect by continually monitoring all personnel and employment-related activities to ensure that the Contractor's obligations under this contract are being carried out.

(14) Ensure that all facilities and company activities are nonsegregated except that separate or single-user rest rooms and necessary dressing or sleeping areas shall be provided to assure privacy between the sexes.

(15) Maintain a record of solicitations for subcontracts for minority and female construction contractors and suppliers, including circulation of solicitations to minority and female contractor associations and other business associations.

(16) Conduct a review, at least annually, of all supervisors' adherence to and performance under the Contractor's equal employment policy and affirmative action obligations.

(h) The Contractor is encouraged to participate in voluntary associations that may assist in fulfilling one or more of the affirmative action obligations contained in subparagraphs (g)(1) through (16) of this clause. The efforts of a contractor association, joint contractor-union, contractor-community, or similar group of which the contractor is a member and participant may be asserted as fulfilling one or more of its obligations under subparagraphs (g)(1) through (16) of this clause, provided the Contractor--

(1) Actively participates in the group;

(2) Makes every effort to ensure that the group has a positive impact on the employment of minorities and women in the industry;

(3) Ensures that concrete benefits of the program are reflected in the Contractor's minority and female workforce participation;

(4) Makes a good-faith effort to meet its individual goals and timetables; and

(5) Can provide access to documentation that demonstrates the effectiveness of actions taken on behalf of the Contractor. The obligation to comply is the Contractor's, and failure of such a group to fulfill an obligation shall not be a defense for the Contractor's noncompliance.

(i) A single goal for minorities and a separate single goal for women shall be established. The Contractor is required to provide equal employment opportunity and to take affirmative action for all minority groups, both male and female, and all women, both minority and nonminority. Consequently, the Contractor may be in violation of Executive Order 11246, as amended, if a particular group is employed in a substantially disparate manner.

(j) The Contractor shall not use goals or affirmative action standards to discriminate against any person because of race, color, religion, sex, or national origin.

(k) The Contractor shall not enter into any subcontract with any person or firm debarred from Government contracts under Executive Order 11246, as amended.

(l) The Contractor shall carry out such sanctions and penalties for violation of this clause and of the Equal Opportunity clause, including suspension, termination, and cancellation of existing subcontracts, as may be imposed or ordered under Executive Order 11246, as amended, and its implementing regulations, by the OFCCP. Any failure to carry out these sanctions and penalties as ordered shall be a violation of this clause and Executive Order 11246, as amended.

(m) The Contractor in fulfilling its obligations under this clause shall implement affirmative action procedures at least as extensive as those prescribed in paragraph (g) of this clause, so as to achieve maximum results from its efforts to ensure equal employment opportunity. If the Contractor fails to comply with the requirements of Executive Order 11246, as amended, the implementing regulations, or this clause, the Deputy Assistant Secretary shall take action as prescribed in 41 CFR 60-4.8.

(n) The Contractor shall designate a responsible official to--

(1) Monitor all employment-related activity to ensure that the Contractor's equal employment policy is being carried out;

(2) Submit reports as may be required by the Government; and

(3) Keep records that shall at least include for each employee the name, address, telephone number, construction trade, union affiliation (if any), employee identification number, social security number, race, sex, status (e.g., mechanic, apprentice, trainee, helper, or laborer), dates of changes in status, hours worked per week in the indicated trade, rate of pay, and locations at which the work was performed. Records shall be maintained in an easily understandable and retrievable form; however, to the degree that existing records satisfy this requirement, separate

records are not required to be maintained.

Nothing contained herein shall be construed as a limitation upon the application of other laws that establish different standards of compliance or upon the requirements for the hiring of local or other area residents (e.g., those under the Public Works Employment Act of 1977 and the Community Development Block Grant Program).

52.222-35 AFFIRMATIVE ACTION FOR DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA (APR 1998)

(a)) Definitions. As used in this clause--

All employment openings includes all positions except executive and top management, those positions that will be filled from within the contractor's organization, and positions lasting 3 days or less. This term includes full-time employment, temporary employment of more than 3 days' duration, and part-time employment.

Appropriate office of the State employment service system means the local office of the Federal-State national system of public employment offices with assigned responsibility to serve the area where the employment opening is to be filled, including the District of Columbia, Guam, the Commonwealth of Puerto Rico, and the Virgin Islands.

Positions that will be filled from within the Contractor's organization means employment openings for which no consideration will be given to persons outside the Contractor's organization (including any affiliates, subsidiaries, and parent companies) and includes any openings that the Contractor proposes to fill from regularly established "recall" lists. The exception does not apply to a particular opening once an employer decides to consider applicants outside of its organization.

Veteran of the Vietnam era means a person who--

(1) Served on active duty for a period of more than 180 days, any part of which occurred between August 5, 1964, and May 7, 1975, and was discharged or released therefrom with other than a dishonorable discharge; or

(2) Was discharged or released from active duty for a service-connected disability if any part of such active duty was performed between August 5, 1964, and May 7, 1975.

(b) General. (1) Regarding any position for which the employee or applicant for employment is qualified, the Contractor shall not discriminate against the individual because the individual is a disabled veteran or a veteran of the Vietnam era. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified disabled veterans and veterans of the Vietnam era without discrimination based upon their disability or veterans' status in all employment practices such as --

(i) Employment;

(ii) Upgrading;

(iii) Demotion or transfer;

(iv) Recruitment;

(v) Advertising;

(vi) Layoff or termination;

(vii) Rates of pay or other forms of compensation; and

(viii) Selection for training, including apprenticeship.

(2) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor (Secretary) issued under the Vietnam Era Veterans' Readjustment Assistance Act of 1972 (the Act), as amended.

(c) Listing openings. (1) The Contractor agrees to list all employment openings existing at contract award or occurring during contract performance, at an appropriate office of the State employment service system in the locality where the opening occurs. These openings include those occurring at any Contractor facility, including one not connected with performing this contract. An independent corporate affiliate is exempt from this requirement.

(2) State and local government agencies holding Federal contracts of \$10,000 or more shall also list all their employment openings with the appropriate office of the State employment service.

(3) The listing of employment openings with the State employment service system is required at least concurrently with using any other recruitment source or effort and involves the obligations of placing a bona fide job order, including accepting referrals of veterans and nonveterans. This listing does not require hiring any particular job applicant or hiring from any particular group of job applicants and is not intended to relieve the Contractor from any requirements of Executive orders or regulations concerning nondiscrimination in employment.

(4) Whenever the Contractor becomes contractually bound to the listing terms of this clause, it shall advise the State employment service system, in each State where it has establishments, of the name and location of each hiring location in the State. As long as the Contractor is contractually bound to these terms and has so advised the State system, it need not advise the State system of subsequent contracts. The Contractor may advise the State system when it is no longer bound by this contract clause.

(d) Applicability. This clause does not apply to the listing of employment openings that occur and are filled outside the 50 States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, and the Virgin Islands.

(e) Postings. (1) The Contractor agrees to post employment notices stating (i) the Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified disabled veterans and veterans of the Vietnam era, and (ii) the rights of applicants and employees.

(2) These notices shall be posted in conspicuous places that are available to employees and applicants for employment. They shall be in a form prescribed by the Deputy Assistant Secretary for Federal Contract Compliance Programs, Department of Labor (Deputy Assistant Secretary), and provided by or through the Contracting Officer.

(3) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of the Act, and is committed to take affirmative action to employ, and advance in employment, qualified disabled veterans and veterans of the Vietnam Era.

(f) Noncompliance. If the Contractor does not comply with the requirements of this clause, appropriate actions may be taken under the rules, regulations, and relevant orders of the Secretary issued pursuant to the Act.

(g) Subcontracts. The Contractor shall include the terms of this clause in every subcontract or purchase order of \$10,000 or more unless exempted by rules, regulations, or orders of the Secretary. The Contractor shall act as specified by the Deputy Assistant Secretary to enforce the terms, including action for noncompliance.

(End of clause)

52.222-36 AFFIRMATIVE ACTION FOR WORKERS WITH DISABILITIES (JUN 1998)

(a) General. (1) Regarding any position for which the employee or applicant for employment is qualified, the Contractor shall not discriminate against any employee or applicant because of physical or mental disability. The Contractor agrees to take affirmative action to employ, advance in employment, and otherwise treat qualified individuals with disabilities without discrimination based upon their physical or mental disability in all employment practices such as--

- (i) Recruitment, advertising, and job application procedures;
- (ii) Hiring, upgrading, promotion, award of tenure, demotion, transfer, layoff, termination, right of return from layoff, and rehiring;
- (iii) Rates of pay or any other form of compensation and changes in compensation;
- (iv) Job assignments, job classifications, organizational structures, position descriptions, lines of progression, and seniority lists;
- (v) Leaves of absence, sick leave, or any other leave;
- (vi) Fringe benefits available by virtue of employment, whether or not administered by the Contractor;
- (vii) Selection and financial support for training, including apprenticeships, professional meetings, conferences, and other related activities, and selection for leaves of absence to pursue training;
- (viii) Activities sponsored by the Contractor, including social or recreational programs; and
- (ix) Any other term, condition, or privilege of employment.

(2) The Contractor agrees to comply with the rules, regulations, and relevant orders of the Secretary of Labor (Secretary) issued under the Rehabilitation Act of 1973 (29 U.S.C. 793) (the Act), as amended.

(b) Postings. (1) The Contractor agrees to post employment notices stating--

(i) The Contractor's obligation under the law to take affirmative action to employ and advance in employment qualified individuals with disabilities; and

(ii) The rights of applicants and employees.

(2) These notices shall be posted in conspicuous places that are available to employees and applicants for employment. The Contractor shall ensure that applicants and employees with disabilities are informed of the contents of the notice (e.g., the Contractor may have the notice read to a visually disabled individual, or may lower the posted notice so that it might be read by a person in a wheelchair). The notices shall be in a form prescribed by the Deputy Assistant Secretary for Federal Contract Compliance of the U.S. Department of Labor (Deputy Assistant Secretary) and shall be provided by or through the Contracting Officer.

(3) The Contractor shall notify each labor union or representative of workers with which it has a collective bargaining agreement or other contract understanding, that the Contractor is bound by the terms of Section 503 of the Act and is committed to take affirmative action to employ, and advance in employment, qualified individuals with physical or mental disabilities.

(c) Noncompliance. If the Contractor does not comply with the requirements of this clause, appropriate actions may be taken under the rules, regulations, and relevant orders of the Secretary issued pursuant to the Act.

(d) Subcontracts. The Contractor shall include the terms of this clause in every subcontract or purchase order in excess of \$10,000 unless exempted by rules, regulations, or orders of the Secretary. The Contractor shall act as specified by the Deputy Assistant Secretary to enforce the terms, including action for noncompliance.

(End of clause)

52.222-37 EMPLOYMENT REPORTS ON DISABLED VETERANS AND VETERANS OF THE VIETNAM ERA (JAN 1999)

(a) Unless the Contractor is a State or local government agency, the Contractor shall report at least annually, as required by the Secretary of Labor, on--

(1) The number of disabled veterans and the number of veterans of the Vietnam era in the workforce of the contractor by job category and hiring location; and

(2) The total number of new employees hired during the period covered by the report, and of that total, the number of disabled veterans, and the number of veterans of the Vietnam era.

(b) The above items shall be reported by completing the form entitled "Federal Contractor Veterans' Employment Report VETS-100."

(c) Reports shall be submitted no later than September 30 of each year beginning September 30, 1988.

(d) The employment activity report required by paragraph (a)(2) of this clause shall reflect total hires during the most recent 12-month period as of the ending date selected for the employment profile report required by paragraph (a)(1) of this clause. Contractors may select an ending date: (1) As of the end of any pay period during the period January through March 1st of the year the report is due, or (2) as of December 31, if the contractor has previous written approval from the Equal Employment Opportunity Commission to do so for purposes of submitting the Employer Information Report EEO-1 (Standard Form 100).

(e) The count of veterans reported according to paragraph (a) of this clause shall be based on voluntary disclosure. Each Contractor subject to the reporting requirements at 38 U.S.C. 4212 shall invite all disabled veterans and veterans of the Vietnam era who wish to benefit under the affirmative action program at 38 U.S.C. 4212 to identify themselves to the Contractor. The invitation shall state that the information is voluntarily provided; that the information will be kept confidential; that disclosure or refusal to provide the information will not subject the applicant or employee to any adverse treatment; and that the information will be used only in accordance with the regulations promulgated under 38 U.S.C. 4212.

(f) Subcontracts. The Contractor shall include the terms of this clause in every subcontract or purchase order of \$10,000 or more unless exempted by rules, regulations, or orders of the Secretary.

(End of clause)

52.223-6 DRUG-FREE WORKPLACE (JAN 1997)

(a) Definitions. As used in this clause --

"Controlled substance" means a controlled substance in schedules I through V of section 202 of the Controlled Substances Act (21 U.S.C. 812) and as further defined in regulation at 21 CFR 1308.11 - 1308.15.

"Conviction" means a finding of guilt (including a plea of nolo contendere) or imposition of sentence, or both, by any judicial body charged with the responsibility to deter- mine violations of the Federal or State criminal drug statutes.

"Criminal drug statute" means a Federal or non-Federal criminal statute involving the manufacture, distribution, dispensing, possession, or use of any controlled substance.

"Drug-free workplace" means the site(s) for the performance of work done by the Contractor in connection with a specific contract at which employees of the Contractor are prohibited from engaging in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance.

"Employee" means an employee of a Contractor directly engaged in the performance of work under a Government contract. "Directly engaged" is defined to include all direct cost employees and any other Contractor employee who has other than a minimal impact or involvement in contract performance.

"Individual" means an offeror/contractor that has no more than one employee including the offeror/contractor.

(b) The Contractor, if other than an individual, shall-- within 30 days after award (unless a longer period is agreed to in writing for contracts of 30 days or more performance duration), or as soon as possible for contracts of less than 30 days performance duration--

(1) Publish a statement notifying its employees that the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance is prohibited in the Contractor's workplace and specifying the actions that will be taken against employees for violations of such prohibition;

(2) Establish an ongoing drug-free awareness program to inform such employees about--

(i) The dangers of drug abuse in the workplace;

(ii) The Contractor's policy of maintaining a drug-free workplace;

(iii) Any available drug counseling, rehabilitation, and employee assistance programs; and

(iv) The penalties that may be imposed upon employees for drug abuse violations occurring in the workplace;

(3) Provide all employees engaged in performance of the contract with a copy of the statement required by subparagraph (b)(1) of this clause;

(4) Notify such employees in writing in the statement required by subparagraph (b)(1) of this clause that, as a condition of continued employment on this contract, the employee will--

(i) Abide by the terms of the statement; and

(ii) Notify the employer in writing of the employee's conviction under a criminal drug statute for a violation occurring in the workplace no later than 5 days after such conviction.

(5) Notify the Contracting Officer in writing within 10 days after receiving notice under subdivision (b)(4)(ii) of this clause, from an employee or otherwise receiving actual notice of such conviction. The notice shall include the position title of the employee;

(6) Within 30 days after receiving notice under subdivision (b)(4)(ii) of this clause of a conviction, take one of the following actions with respect to any employee who is convicted of a drug abuse violation occurring in the

workplace:

- (i) Taking appropriate personnel action against such employee, up to and including termination; or
 - (ii) Require such employee to satisfactorily participate in a drug abuse assistance or rehabilitation program approved for such purposes by a Federal, State, or local health, law enforcement, or other appropriate agency; and
- (7) Make a good faith effort to maintain a drug-free workplace through implementation of subparagraphs (b)(1) through (b)(6) of this clause.
- (c) The Contractor, if an individual, agrees by award of the contract or acceptance of a purchase order, not to engage in the unlawful manufacture, distribution, dispensing, possession, or use of a controlled substance while performing this contract.
- (d) In addition to other remedies available to the Government, the Contractor's failure to comply with the requirements of paragraph (b) or (c) of this clause may, pursuant to FAR 23.506, render the Contractor subject to suspension of contract payments, termination of the contract for default, and suspension or debarment.

(End of clause)

52.223-14 TOXIC CHEMICAL RELEASE REPORTING (OCT 2000)

- (a) Unless otherwise exempt, the Contractor, as owner or operator of a facility used in the performance of this contract, shall file by July 1 for the prior calendar year an annual Toxic Chemical Release Inventory Form (Form R) as described in sections 313(a) and (g) of the Emergency Planning and Community Right-to-Know Act of 1986 (EPCRA) (42 U.S.C. 11023(a) and (g)), and section 6607 of the Pollution Prevention Act of 1990 (PPA) (42 U.S.C. 13106). The Contractor shall file, for each facility subject to the Form R filing and reporting requirements, the annual Form R throughout the life of the contract.
- (b) A Contractor owned or operated facility used in the performance of this contract is exempt from the requirement to file an annual Form R if--
- (1) The facility does not manufacture, process, or otherwise use any toxic chemicals listed under section 313(c) of EPCRA, 42 U.S.C. 11023(c);
 - (2) The facility does not have 10 or more full-time employees as specified in section 313(b)(1)(A) of EPCRA, 42 U.S.C. 11023(b)(1)(A);
 - (3) The facility does not meet the reporting thresholds of toxic chemicals established under of EPCRA, 42 U.S.C. 11023(f) (including the alternate thresholds at 40 CFR 372.27, provided an appropriate certification form has been filed with EPA);
 - (4) The facility does not fall within Standard Industrial Classification Code (SIC) major groups 20 through 39 or their corresponding North American Industry Classification System (NAICS) sectors 31 through 33; or
 - (5) The facility is not located within any State of the United States, the District of Columbia, the Commonwealth of Puerto Rico, Guam, American Samoa, the United States Virgin Islands, the Northern Mariana Islands, or any other territory or possession over which the United States has jurisdiction.
- (c) If the Contractor has certified to an exemption in accordance with one or more of the criteria in paragraph (b) of this clause, and after award of the contract circumstances change so that any of its owned or operated facilities used in the performance of this contract is no longer exempt--

(1) The Contractor shall notify the Contracting Officer; and

(2) The Contractor, as owner or operator of a facility used in the performance of this contract that is no longer exempt, shall (i) submit a Toxic Chemical Release Inventory Form (Form R) on or before July 1 for the prior calendar year during which the facility becomes eligible; and (ii) continue to file the annual Form R for the life of the contract for such facility.

(d) The Contracting Officer may terminate this contract or take other action as appropriate, if the Contractor fails to comply accurately and fully with the EPCRA and PPA toxic chemical release filing and reporting requirements.

(e) Except for acquisitions of commercial items, as defined in FAR Part 2, the Contractor shall--

(1) For competitive subcontracts expected to exceed \$100,000 (including all options), include a solicitation provision substantially the same as the provision at FAR 52.223-13, Certification of Toxic Chemical Release Reporting; and

(2) Include in any resultant subcontract exceeding \$100,000 (including all options), the substance of this clause, except this paragraph (e).

52.225-11 BUY AMERICAN ACT--BALANCE OF PAYMENTS PROGRAM--CONSTRUCTION MATERIALS UNDER TRADE AGREEMENTS (FEB 2000)

(a) Definitions. As used in this clause--

Component means any article, material, or supply incorporated directly into construction materials.

Construction material means an article, material, or supply brought to the construction site by the Contractor or subcontractor for incorporation into the building or work. The term also includes an item brought to the site preassembled from articles, materials, or supplies. However, emergency life safety systems, such as emergency lighting, fire alarm, and audio evacuation systems, that are discrete systems incorporated into a public building or work and that are produced as complete systems, are evaluated as a single and distinct construction material regardless of when or how the individual parts or components of those systems are delivered to the construction site. Materials purchased directly by the Government are supplies, not construction material.

Cost of components means--

(1) For components purchased by the Contractor, the acquisition cost, including transportation costs to the place of incorporation into the end product (whether or not such costs are paid to a domestic firm), and any applicable duty (whether or not a duty-free entry certificate is issued); or

(2) For components manufactured by the Contractor, all costs associated with the manufacture of the component, including transportation costs as described in paragraph (1) of this definition, plus allocable overhead costs, but excluding profit. Cost of components does not include any costs associated with the manufacture of the end product.

Designated country means any of the following countries: Aruba, Austria, Bangladesh, Belgium, Benin, Bhutan, Botswana, Burkina Faso, Burundi, Canada, Cape Verde, Central African Republic, Chad, Comoros, Denmark.

Djibouti, Equatorial Guinea, Finland, France, Gambia, Germany, Greece, Guinea, Guinea-Bissau, Haiti, Hong Kong, Ireland, Israel, Italy, Japan.

Kiribati, Korea, Republic of, Lesotho, Liechtenstein, Luxembourg, Malawi, Maldives, Mali, Mozambique, Nepal, Netherlands, Niger, Norway, Portugal, Rwanda.

Sao Tome and Principe, Sierra Leone, Singapore, Somalia, Spain, Sweden, Switzerland, Tanzania U.R., Togo, Tuvalu, Uganda, United Kingdom, Vanuatu, Western Samoa, Yemen.

Designated country construction material means a construction material that--

- (1) Is wholly the growth, product, or manufacture of a designated country; or
- (2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a designated country into a new and different construction material distinct from the materials from which it was transformed.

Domestic construction material means--

- (1) An unmanufactured construction material mined or produced in the United States; or
- (2) A construction material manufactured in the United States, if the cost of its components mined, produced, or manufactured in the United States exceeds 50 percent of the cost of all its components. Components of foreign origin of the same class or kind for which nonavailability determinations have been made are treated as domestic.

Foreign construction material means a construction material other than a domestic construction material.

North American Free Trade Agreement country means Canada or Mexico.

North American Free Trade Agreement country construction material means a construction material that--

- (1) Is wholly the growth, product, or manufacture of a North American Free Trade Agreement (NAFTA) country; or
- (2) In the case of a construction material that consists in whole or in part of materials from another country, has been substantially transformed in a NAFTA country into a new and different construction material distinct from the materials from which it was transformed.

United States means the 50 States and the District of Columbia, U.S. territories and possessions, Puerto Rico, the Northern Mariana Islands, and any other place subject to U.S. jurisdiction, but does not include leased bases.

(b) Construction materials. (1) This clause implements the Buy American Act (41 U.S.C. 10a-10d) and the Balance of Payments Program by providing a preference for domestic construction material. In addition, the Contracting Officer has determined that the Trade Agreements Act and the North American Free Trade Agreement (NAFTA) apply to this acquisition. Therefore, the Buy American Act and Balance of Payments Program restrictions are waived for designated country and NAFTA country construction materials.

(2) The Contractor shall use only domestic, designated country, or NAFTA country construction material in performing this contract, except as provided in paragraphs (b)(3) and (b)(4) of this clause.

(3) The requirement in paragraph (b)(2) of this clause does not apply to the construction materials or components listed by the Government as follows: none

(4) The Contracting Officer may add other foreign construction material to the list in paragraph (b)(3) of this clause if the Government determines that--

(i) The cost of domestic construction material would be unreasonable. The cost of a particular domestic construction material subject to the restrictions of the Buy American Act is unreasonable when the cost of such material exceeds

the cost of foreign material by more than 6 percent. For determination of unreasonable cost under the Balance of Payments Program, the Contracting Officer will use a factor of 50 percent;

(ii) The application of the restriction of the Buy American Act or Balance of Payments Program to a particular construction material would be impracticable or inconsistent with the public interest; or

(iii) The construction material is not mined, produced, or manufactured in the United States in sufficient and reasonably available commercial quantities of a satisfactory quality.

(c) Request for determination of inapplicability of the Buy American Act or Balance of Payments Program. (1)(i) Any Contractor request to use foreign construction material in accordance with paragraph (b)(4) of this clause shall include adequate information for Government evaluation of the request, including--

(A) A description of the foreign and domestic construction materials;

(B) Unit of measure;

(C) Quantity;

(D) Price;

(E) Time of delivery or availability;

(F) Location of the construction project;

(G) Name and address of the proposed supplier; and

(H) A detailed justification of the reason for use of foreign construction materials cited in accordance with paragraph (b)(3) of this clause.

(ii) A request based on unreasonable cost shall include a reasonable survey of the market and a completed price comparison table in the format in paragraph (d) of this clause.

(iii) The price of construction material shall include all delivery costs to the construction site and any applicable duty (whether or not a duty-free certificate may be issued).

(iv) Any Contractor request for a determination submitted after contract award shall explain why the Contractor could not reasonably foresee the need for such determination and could not have requested the determination before contract award. If the Contractor does not submit a satisfactory explanation, the Contracting Officer need not make a determination.

(2) If the Government determines after contract award that an exception to the Buy American Act or Balance of Payments Program applies and the Contracting Officer and the Contractor negotiate adequate consideration, the Contracting Officer will modify the contract to allow use of the foreign construction material. However, when the basis for the exception is the unreasonable price of a domestic construction material, adequate consideration is not less than the differential established in paragraph (b)(4)(i) of this clause.

(3) Unless the Government determines that an exception to the Buy American Act or Balance of Payments Program applies, use of foreign construction material is noncompliant with the Buy American Act or Balance of Payments Program.

(d) Data. To permit evaluation of requests under paragraph (c) of this clause based on unreasonable cost, the Contractor shall include the following information and any applicable supporting data based on the survey of suppliers:

Foreign and Domestic Construction Materials Price Comparison

Construction material description	Unit of measure	Quantity	Price (dollars) \1\
Item 1:			
Foreign construction material....			
Domestic construction material...			
Item 2:			
Foreign construction material....			
Domestic construction material...			

\1\ Include all delivery costs to the construction site and any applicable duty (whether or not a duty-free entry certificate is issued).

List name, address, telephone number, and contact for suppliers surveyed. Attach copy of response; if oral, attach summary.

Include other applicable supporting information.

(End of clause)

52.225-13 RESTRICTIONS ON CERTAIN FOREIGN PURCHASES (JUL 2000)

(a) The Contractor shall not acquire, for use in the performance of this contract, any supplies or services originating from sources within, or that were located in or transported from or through, countries whose products are banned from importation into the United States under regulations of the Office of Foreign Assets Control, Department of the Treasury. Those countries are Cuba, Iran, Iraq, Libya, North Korea, Sudan, the territory of Afghanistan controlled by the Taliban, and Serbia (excluding the territory of Kosovo).

(b) The Contractor shall not acquire for use in the performance of this contract any supplies or services from entities controlled by the government of Iraq.

(c) The Contractor shall insert this clause, including this paragraph (c), in all subcontracts.

(End of clause)

52.226-1 UTILIZATION OF INDIAN ORGANIZATIONS AND INDIAN-OWNED ECONOMIC ENTERPRISES (JUN 2000)

(a) Definitions. As used in this clause:

"Indian" means any person who is a member of any Indian tribe, band, group, pueblo or community that is recognized by the Federal Government as eligible for services from the Bureau of Indian Affairs (BIA) in accordance with 25 U.S.C. 1452(c) and any "Native" as defined in the Alaska Native Claims Settlement Act (43 U.S.C. 1601).

"Indian organization" means the governing body of any Indian tribe or entity established or recognized by the governing body of an Indian tribe for the purposes of 25 U.S.C., chapter 17.

"Indian-owned economic enterprise" means any Indian-owned (as determined by the Secretary of the Interior) commercial, industrial, or business activity established or organized for the purpose of profit, provided that Indian ownership constitute a not less than 51 percent of the enterprise.

"Indian tribe" means any Indian tribe, band, group, pueblo or community, including native villages and native groups (including corporations organized by Kenai, Juneau, Sitka, and Kodiak) as defined in the Alaska Native Claims Settlement Act, that is recognized by the Federal Government as eligible for services from BIA in accordance with 25 U.S.C. 1542(c).

"Interested party" means a prime contractor or an actual or prospective offeror whose direct economic interest would be affected by the award of a subcontract or by the failure to award a subcontract.

(b) The Contractor shall use its best efforts to give Indian organizations and Indian-owned economic enterprises (25 U.S.C. 1544) the maximum practicable opportunity to participate in the subcontracts it awards to the fullest extent consistent with efficient performance of its contract.

(1) The Contracting Officer and the Contractor, acting in good faith, may rely on the representation of an Indian organization or Indian-owned economic enterprise as to its eligibility, unless an interested party challenges its status or the Contracting Officer has independent reason to question that status. In the event of a challenge to the representation of a subcontractor, the Contracting Officer will refer the matter to the U.S. Department of the Interior, Bureau of Indian Affairs (BIA), Attn: Chief, Division of Contracting and Grants Administration, 1849 C Street, NW., MS 2626-MIB, Washington, DC 20240-4000.

The BIA will determine the eligibility and notify the Contracting Officer. No incentive payment will be made within 50 working days of subcontract award or while a challenge is pending. If a subcontractor is determined to be an ineligible participant, no incentive payment will be made under the Indian Incentive Program.

(2) The Contractor may request an adjustment under the Indian Incentive Program to the following:

- (i) The estimated cost of a cost-type contract.
- (ii) The target cost of a cost-plus-incentive-fee prime contract.
- (iii) The target cost and ceiling price of a fixed-price incentive prime contract.
- (iv) The price of a firm-fixed-price prime contract.

(3) The amount of the adjustment to the prime contract is 5 percent of the estimated cost, target cost, or firm-fixed-price included in the subcontract initially awarded to the Indian organization or Indian-owned economic enterprise.

(4) The Contractor has the burden of proving the amount claimed and must assert its request for an adjustment prior to completion of contract performance.

(c) The Contracting Officer, subject to the terms and conditions of the contract and the availability of funds, will authorize an incentive payment of 5 percent of the amount paid to the subcontractor. The Contracting Officer will seek funding in accordance with agency procedures.

(End of clause)

52.227-1 AUTHORIZATION AND CONSENT (JUL 1995)

(a) The Government authorizes and consents to all use and manufacture, in performing this contract or any subcontract at any tier, of any invention described in and covered by a United States patent (1) embodied in the structure or composition of any article the delivery of which is accepted by the Government under this contract or (2) used in machinery, tools, or methods whose use necessarily results from compliance by the Contractor or a subcontractor with (i) specifications or written provisions forming a part of this contract or (ii) specific written instructions given by the Contracting Officer directing the manner of performance. The entire liability to the Government for infringement of a patent of the United States shall be determined solely by the provisions of the indemnity clause, if any, included in this contract or any subcontract hereunder (including any lower-tier subcontract), and the Government assumes liability for all other infringement to the extent of the authorization and consent hereinabove granted.

(b) The Contractor agrees to include, and require inclusion of, this clause, suitably modified to identify the parties, in all subcontracts at any tier for supplies or services (including construction, architect-engineer services, and materials, supplies, models, samples, and design or testing services expected to exceed the simplified acquisition threshold (however, omission of this clause from any subcontract, including those at or below the simplified acquisition threshold, does not affect this authorization and consent.)

52.227-2 NOTICE AND ASSISTANCE REGARDING PATENT AND COPYRIGHT INFRINGEMENT (AUG 1996)

(a) The Contractor shall report to the Contracting Officer, promptly and in reasonable written detail, each notice or claim of patent or copyright infringement based on the performance of this contract of which the Contractor has knowledge.

(b) In the event of any claim or suit against the Government on account of any alleged patent or copyright infringement arising out of the performance of this contract or out of the use of any supplies furnished or work or services performed under this contract, the Contractor shall furnish to the Government, when requested by the Contracting Officer, all evidence and information in possession of the Contractor pertaining to such suit or claim. Such evidence and information shall be furnished at the expense of the Government except where the Contractor has agreed to indemnify the Government.

(c) The Contractor agrees to include, and require inclusion of, this clause in all subcontracts at any tier for supplies or services (including construction and architect-engineer subcontracts and those for material, supplies, models, samples, or design or testing services) expected to exceed the simplified acquisition threshold at (FAR) 2.101 to exceed the dollar amount set forth in 13.000 of the Federal Acquisition Regulation (FAR).

(End of clause)

52.227-4 PATENT INDEMNITY-CONSTRUCTION CONTRACTS (APR 1984)

Except as otherwise provided, the Contractor agrees to indemnify the Government and its officers, agents, and employees against liability, including costs and expenses, for infringement upon any United States patent (except a patent issued upon an application that is now or may hereafter be withheld from issue pursuant to a Secrecy Order

under 35 U.S.C. 181) arising out of performing this contract or out of the use or disposal by or for the account of the Government of supplies furnished or work performed under this contract.

52.228-1 BID GUARANTEE (SEP 1996)

- (a) Failure to furnish a bid guarantee in the proper form and amount, by the time set for opening of bids, may be cause for rejection of the bid.
- (b) The bidder shall furnish a bid guarantee in the form of a firm commitment, e.g., bid bond supported by good and sufficient surety or sureties acceptable to the Government, postal money order, certified check, cashier's check, irrevocable letter of credit, or, under Treasury Department regulations, certain bonds or notes of the United States. The Contracting Officer will return bid guarantees, other than bid bonds, (1) to unsuccessful bidders as soon as practicable after the opening of bids, and (2) to the successful bidder upon execution of contractual documents and bonds (including any necessary coinsurance or reinsurance agreements), as required by the bid as accepted.
- (c) The amount of the bid guarantee shall be _____ percent of the bid price or \$_____, whichever is less.
- (d) If the successful bidder, upon acceptance of its bid by the Government within the period specified for acceptance, fails to execute all contractual documents or furnish executed bond(s) within 10 days after receipt of the forms by the bidder, the Contracting Officer may terminate the contract for default.
- (e) In the event the contract is terminated for default, the bidder is liable for any cost of acquiring the work that exceeds the amount of its bid, and the bid guarantee is available to offset the difference.

52.228-11 PLEDGES OF ASSETS (FEB 1992)

- (a) Offerors shall obtain from each person acting as an individual surety on a bid guarantee, a performance bond, or a payment bond--
 - (1) Pledge of assets; and
 - (2) Standard Form 28, Affidavit of Individual Surety.
- (b) Pledges of assets from each person acting as an individual surety shall be in the form of--
 - (1) Evidence of an escrow account containing cash, certificates of deposit, commercial or Government securities, or other assets described in FAR 28.203-2 (except see 28.203-2(b)(2) with respect to Government securities held in book entry form) and/or;
 - (2) A recorded lien on real estate. The offeror will be required to provide--
 - (i) Evidence of title in the form of a certificate of title prepared by a title insurance company approved by the United States Department of Justice. This title evidence must show fee simple title vested in the surety along with any concurrent owners; whether any real estate taxes are due and payable; and any recorded encumbrances against the property, including the lien filed in favor of the Government as required by FAR 28.203-3(d);
 - (ii) Evidence of the amount due under any encumbrance shown in the evidence of title;
 - (iii) A copy of the current real estate tax assessment of the property or a current appraisal dated no earlier than 6

months prior to the date of the bond, prepared by a professional appraiser who certifies that the appraisal has been conducted in accordance with the generally accepted appraisal standards as reflected in the Uniform Standards of Professional Appraisal Practice, as promulgated by the Appraisal Foundation.

(End of clause)

52.228-14 IRREVOCABLE LETTER OF CREDIT (DEC 1999)

(a) "Irrevocable letter of credit" (ILC), as used in this clause, means a written commitment by a federally insured financial institution to pay all or part of a stated amount of money, until the expiration date of the letter, upon presentation by the Government (the beneficiary) of a written demand therefor. Neither the financial institution nor the offeror/Contractor can revoke or condition the letter of credit.

(b) If the offeror intends to use an ILC in lieu of a bid bond, or to secure other types of bonds such as performance and payment bonds, the letter of credit and letter of confirmation formats in paragraphs (e) and (f) of this clause shall be used.

(c) The letter of credit shall be irrevocable, shall require presentation of no document other than a written demand and the ILC (including confirming letter, if any), shall be issued/confirmed by an acceptable federally insured financial institution as provided in paragraph (d) of this clause, and--

(1) If used as a bid guarantee, the ILC shall expire no earlier than 60 days after the close of the bid acceptance period;

(2) If used as an alternative to corporate or individual sureties as security for a performance or payment bond, the offeror/Contractor may submit an ILC with an initial expiration date estimated to cover the entire period for which financial security is required or may submit an ILC with an initial expiration date that is a minimum period of one year from the date of issuance. The ILC shall provide that, unless the issuer provides the beneficiary written notice of non-renewal at least 60 days in advance of the current expiration date, the ILC is automatically extended without amendment for one year from the expiration date, or any future expiration date, until the period of required coverage is completed and the Contracting Officer provides the financial institution with a written statement waiving the right to payment. The period of required coverage shall be:

(i) For contracts subject to the Miller Act, the later of--

(A) One year following the expected date of final payment;

(B) For performance bonds only, until completion of any warranty period; or

(C) For payment bonds only, until resolution of all claims filed against the payment bond during the one-year period following final payment.

(ii) For contracts not subject to the Miller Act, the later of--

(A) 90 days following final payment; or

(B) For performance bonds only, until completion of any warranty period.

(d) Only federally insured financial institutions rated investment grade or higher shall issue or confirm the ILC. The offeror/Contractor shall provide the Contracting Officer a credit rating that indicates the financial institution has the required rating(s) as of the date of issuance of the ILC. Unless the financial institution issuing the ILC had letter of credit business of less than \$25 million in the past year, ILCs over \$5 million must be confirmed by another

acceptable financial institution that had letter of credit business of less than \$25 million in the past year.

(e) The following format shall be used by the issuing financial institution to create an ILC:

[Issuing Financial Institution's Letterhead or Name and Address]

Issue Date _____

IRREVOCABLE LETTER OF CREDIT NO. _____

Account party's name _____

Account party's address _____

For Solicitation No. _____ (for reference only)

TO: [U.S. Government agency]

[U.S. Government agency's address]

1. We hereby establish this irrevocable and transferable Letter of Credit in your favor for one or more drawings up to United States \$_____. This Letter of Credit is payable at [issuing financial institution's and, if any, confirming financial institution's] office at [issuing financial institution's address and, if any, confirming financial institution's address] and expires with our close of business on _____, or any automatically extended expiration date.

2. We hereby undertake to honor your or the transferee's sight draft(s) drawn on the issuing or, if any, the confirming financial institution, for all or any part of this credit if presented with this Letter of Credit and confirmation, if any, at the office specified in paragraph 1 of this Letter of Credit on or before the expiration date or any automatically extended expiration date.

3. [This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.] It is a condition of this Letter of Credit that it is deemed to be automatically extended without amendment for one year from the expiration date hereof, or any future expiration date, unless at least 60 days prior to any expiration date, we notify you or the transferee by registered mail, or other receipted means of delivery, that we elect not to consider this Letter of Credit renewed for any such additional period. At the time we notify you, we also agree to notify the account party (and confirming financial institution, if any) by the same means of delivery.

4. This Letter of Credit is transferable. Transfers and assignments of proceeds are to be effected without charge to either the beneficiary or the transferee/assignee of proceeds. Such transfer or assignment shall be only at the written direction of the Government (the beneficiary) in a form satisfactory to the issuing financial institution and the confirming financial institution, if any.

5. This Letter of Credit is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of _____ [state of confirming financial institution, if any, otherwise state of issuing financial institution].

6. If this credit expires during an interruption of business of this financial institution as described in Article 17 of the UCP, the financial institution specifically agrees to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,

[Issuing financial institution]

(f) The following format shall be used by the financial institution to confirm an ILC:

[Confirming Financial Institution's Letterhead or Name and Address]

(Date) _____

Our Letter of Credit Advice Number _____

Beneficiary: _____ [U.S. Government agency]

Issuing Financial Institution: _____

Issuing Financial Institution's LC No.: _____

Gentlemen:

1. We hereby confirm the above indicated Letter of Credit, the original of which is attached, issued by _____ [name of issuing financial institution] for drawings of up to United States dollars _____/U.S. \$_____ and expiring with our close of business on _____ [the expiration date], or any automatically extended expiration date.

2. Draft(s) drawn under the Letter of Credit and this Confirmation are payable at our office located at _____.

3. We hereby undertake to honor sight draft(s) drawn under and presented with the Letter of Credit and this Confirmation at our offices as specified herein.

4. [This paragraph is omitted if used as a bid guarantee, and subsequent paragraphs are renumbered.] It is a condition of this confirmation that it be deemed automatically extended without amendment for one year from the expiration date hereof, or any automatically extended expiration date, unless:

(a) At least 60 days prior to any such expiration date, we shall notify the Contracting Officer, or the transferee and the issuing financial institution, by registered mail or other receipted means of delivery, that we elect not to consider this confirmation extended for any such additional period; or

(b) The issuing financial institution shall have exercised its right to notify you or the transferee, the account party, and ourselves, of its election not to extend the expiration date of the Letter of Credit.

5. This confirmation is subject to the Uniform Customs and Practice (UCP) for Documentary Credits, 1993 Revision, International Chamber of Commerce Publication No. 500, and to the extent not inconsistent therewith, to the laws of _____ [state of confirming financial institution].

6. If this confirmation expires during an interruption of business of this financial institution as described in Article 17 of the UCP, we specifically agree to effect payment if this credit is drawn against within 30 days after the resumption of our business.

Sincerely,

[Confirming financial institution]

(g) The following format shall be used by the Contracting Officer for a sight draft to draw on the Letter of Credit:

SIGHT DRAFT

[City, State]

(Date) _____

[Name and address of financial institution]

Pay to the order of _____ [Beneficiary Agency] _____ the sum of United States \$ _____.
This draft is drawn under Irrevocable Letter of Credit No. _____.

[Beneficiary Agency]

By: _____

(End of clause)

52.228-15 PERFORMANCE AND PAYMENT BONDS--CONSTRUCTION (JUL 2000)-

(a) Definitions. As used in this clause--

Original contract price means the award price of the contract; or, for requirements contracts, the price payable for the estimated total quantity; or, for indefinite-quantity contracts, the price payable for the specified minimum quantity. Original contract price does not include the price of any options, except those options exercised at the time of contract award.

(b) Amount of required bonds. Unless the resulting contract price is \$100,000 or less, the successful offeror shall furnish performance and payment bonds to the Contracting Officer as follows:

(1) Performance bonds (Standard Form 25). The penal amount of performance bonds at the time of contract award shall be 100 percent of the original contract price.

(2) Payment Bonds (Standard Form 25-A). The penal amount of payment bonds at the time of contract award shall be 100 percent of the original contract price.

(3) Additional bond protection. (i) The Government may require additional performance and payment bond protection if the contract price is increased. The increase in protection generally will equal 100 percent of the increase in contract price.

(ii) The Government may secure the additional protection by directing the Contractor to increase the penal amount of the existing bond or to obtain an additional bond.

(c) Furnishing executed bonds. The Contractor shall furnish all executed bonds, including any necessary reinsurance agreements, to the Contracting Officer, within the time period specified in the Bid Guarantee provision of the solicitation, or otherwise specified by the Contracting Officer, but in any event, before starting work.

(d) Surety or other security for bonds. The bonds shall be in the form of firm commitment, supported by corporate sureties whose names appear on the list contained in Treasury Department Circular 570, individual sureties, or by other acceptable security such as postal money order, certified check, cashier's check, irrevocable letter of credit, or, in accordance with Treasury Department regulations, certain bonds or notes of the United States. Treasury Circular 570 is published in the Federal Register or may be obtained from the U.S. Department of Treasury, Financial Management Service, Surety Bond Branch, 401 14th Street, NW, 2nd Floor, West Wing, Washington, DC 20227.

(e) Notice of subcontractor waiver of protection (40 U.S.C. 270b(c)). Any waiver of the right to sue on the payment bond is void unless it is in writing, signed by the person whose right is waived, and executed after such person has first furnished labor or material for use in the performance of the contract.

(End of clause)

52.229-3 FEDERAL, STATE, AND LOCAL TAXES (JAN 1991)

(a) "Contract date," as used in this clause, means the date set for bid opening or, if this is a negotiated contract or a modification, the effective date of this contract or modification.

"All applicable Federal, State, and local taxes and duties," as used in this clause, means all taxes and duties, in effect on the contract date, that the taxing authority is imposing and collecting on the transactions or property covered by this contract.

"After-imposed Federal tax," as used in this clause, means any new or increased Federal excise tax or duty, or tax that was exempted or excluded on the contract date but whose exemption was later revoked or reduced during the contract period, on the transactions or property covered by this contract that the Contractor is required to pay or bear as the result of legislative, judicial, or administrative action taking effect after the contract date. It does not include social security tax or other employment taxes.

"After-relieved Federal tax," as used in this clause, means any amount of Federal excise tax or duty, except social security or other employment taxes, that would otherwise have been payable on the transactions or property covered by this contract, but which the Contractor is not required to pay or bear, or for which the Contractor obtains a refund or drawback, as the result of legislative, judicial, or administrative action taking effect after the contract date.

(b) The contract price includes all applicable Federal, State, and local taxes and duties.

(c) The contract price shall be increased by the amount of any after-imposed Federal tax, provided the Contractor warrants in writing that no amount for such newly imposed Federal excise tax or duty or rate increase was included in the contract price, as a contingency reserve or otherwise.

(d) The contract price shall be decreased by the amount of any after-relieved Federal tax.

(e) The contract price shall be decreased by the amount of any Federal excise tax or duty, except social security or other employment taxes, that the Contractor is required to pay or bear, or does not obtain a refund of, through the Contractor's fault, negligence, or failure to follow instructions of the Contracting Officer.

(f) No adjustment shall be made in the contract price under this clause unless the amount of the adjustment exceeds \$250.

(g) The Contractor shall promptly notify the Contracting Officer of all matters relating to any Federal excise tax or duty that reasonably may be expected to result in either an increase or decrease in the contract price and shall take appropriate action as the Contracting Officer directs.

(h) The Government shall, without liability, furnish evidence appropriate to establish exemption from any Federal, State, or local tax when the Contractor requests such evidence and a reasonable basis exists to sustain the exemption.

(End of clause)

52.229-5 TAXES--CONTRACTS PERFORMED IN U.S. POSSESSIONS OR PUERTO RICO (APR 1984)

The term "local taxes," as used in the Federal, State, and local taxes clause of this contract, includes taxes imposed by a possession of the United States or by Puerto Rico.

(End of clause)

52.232-5 PAYMENTS UNDER FIXED-PRICE CONSTRUCTION CONTRACTS (MAY 1997)

(a) Payment of price. The Government shall pay the Contractor the contract price as provided in this contract.

(b) Progress payments. The Government shall make progress payments monthly as the work proceeds, or at more frequent intervals as determined by the Contracting Officer, on estimates of work accomplished which meets the standards of quality established under the contract, as approved by the Contracting Officer.

(1) The Contractor's request for progress payments shall include the following substantiation:

(i) An itemization of the amounts requested, related to the various elements of work required by the contract covered by the payment requested.

(ii) A listing of the amount included for work performed by each subcontractor under the contract.

(iii) A listing of the total amount of each subcontract under the contract.

(iv) A listing of the amounts previously paid to each such subcontractor under the contract.

(v) Additional supporting data in a form and detail required by the Contracting Officer.

(2) In the preparation of estimates, the Contracting Officer may authorize material delivered on the site and preparatory work done to be taken into consideration. Material delivered to the Contractor at locations other than the site also may be taken into consideration if--

(i) Consideration is specifically authorized by this contract; and

(ii) The Contractor furnishes satisfactory evidence that it has acquired title to such material and that the material will be used to perform this contract.

(c) Contractor certification. Along with each request for progress payments, the Contractor shall furnish the following certification, or payment shall not be made: (However, if the Contractor elects to delete paragraph (c)(4) from the certification, the certification is still acceptable.)

I hereby certify, to the best of my knowledge and belief, that--

- (1) The amounts requested are only for performance in accordance with the specifications, terms, and conditions of the contract;
- (2) Payments to subcontractors and suppliers have been made from previous payments received under the contract, and timely payments will be made from the proceeds of the payment covered by this certification, in accordance with subcontract agreements and the requirements of chapter 39 of Title 31, United States Code;
- (3) This request for progress payments does not include any amounts which the prime contractor intends to withhold or retain from a subcontractor or supplier in accordance with the terms and conditions of the subcontract; and
- (4) This certification is not to be construed as final acceptance of a subcontractor's performance.

(Name)

(Title)

(Date)

(d) Refund of unearned amounts. If the Contractor, after making a certified request for progress payments, discovers that a portion or all of such request constitutes a payment for performance by the Contractor that fails to conform to the specifications, terms, and conditions of this contract (hereinafter referred to as the "unearned amount"), the Contractor shall--

- (1) Notify the Contracting Officer of such performance deficiency; and
- (2) Be obligated to pay the Government an amount (computed by the Contracting Officer in the manner provided in paragraph (j) of this clause) equal to interest on the unearned amount from the 8th day after the date of receipt of the unearned amount until--
 - (i) The date the Contractor notifies the Contracting Officer that the performance deficiency has been corrected; or
 - (ii) The date the Contractor reduces the amount of any subsequent certified request for progress payments by an amount equal to the unearned amount.

(e) Retainage. If the Contracting Officer finds that satisfactory progress was achieved during any period for which a progress payment is to be made, the Contracting Officer shall authorize payment to be made in full. However, if satisfactory progress has not been made, the Contracting Officer may retain a maximum of 10 percent of the amount of the payment until satisfactory progress is achieved. When the work is substantially complete, the Contracting Officer may retain from previously withheld funds and future progress payments that amount the Contracting Officer considers adequate for protection of the Government and shall release to the Contractor all the remaining withheld funds. Also, on completion and acceptance of each separate building, public work, or other division of the contract, for which the price is stated separately in the contract, payment shall be made for the completed work without retention of a percentage.

(f) Title, liability, and reservation of rights. All material and work covered by progress payments made shall, at the time of payment, become the sole property of the Government, but this shall not be construed as --

(1) Relieving the Contractor from the sole responsibility for all material and work upon which payments have been made or the restoration of any damaged work; or

(2) Waiving the right of the Government to require the fulfillment of all of the terms of the contract.

(g) Reimbursement for bond premiums. In making these progress payments, the Government shall, upon request, reimburse the Contractor for the amount of premiums paid for performance and payment bonds (including coinsurance and reinsurance agreements, when applicable) after the Contractor has furnished evidence of full payment to the surety. The retainage provisions in paragraph (e) of this clause shall not apply to that portion of progress payments attributable to bond premiums.

(h) Final payment. The Government shall pay the amount due the Contractor under this contract after--

(1) Completion and acceptance of all work;

(2) Presentation of a properly executed voucher; and

(3) Presentation of release of all claims against the Government arising by virtue of this contract, other than claims, in stated amounts, that the Contractor has specifically excepted from the operation of the release. A release may also be required of the assignee if the Contractor's claim to amounts payable under this contract has been assigned under the Assignment of Claims Act of 1940 (31 U.S.C. 3727 and 41 U.S.C. 15).

(i) Limitation because of undefinitized work. Notwithstanding any provision of this contract, progress payments shall not exceed 80 percent on work accomplished on undefinitized contract actions. A "contract action" is any action resulting in a contract, as defined in FAR Subpart 2.1, including contract modifications for additional supplies or services, but not including contract modifications that are within the scope and under the terms of the contract, such as contract modifications issued pursuant to the Changes clause, or funding and other administrative changes.

(j) Interest computation on unearned amounts. In accordance with 31 U.S.C. 3903(c)(1), the amount payable under subparagraph (d)(2) of this clause shall be--

(1) Computed at the rate of average bond equivalent rates of 91-day Treasury bills auctioned at the most recent auction of such bills prior to the date the Contractor receives the unearned amount; and

(2) Deducted from the next available payment to the Contractor.

52.232-17 INTEREST (JUNE 1996)

(a) Except as otherwise provided in this contract under a Price Reduction for Defective Cost or Pricing Data clause or a Cost Accounting Standards clause, all amounts that become payable by the Contractor to the Government under this contract (net of any applicable tax credit under the Internal Revenue Code (26 U.S.C. 1481)) shall bear simple interest from the date due until paid unless paid within 30 days of becoming due. The interest rate shall be the interest rate established by the Secretary of the Treasury as provided in Section 12 of the Contract Disputes Act of 1978 (Public Law 95-563), which is applicable to the period in which the amount becomes due, as provided in paragraph (b) of this clause, and then at the rate applicable for each six-month period as fixed by the Secretary until the amount is paid. reproduce, prepare derivative works, distribute copies to the public, and (b) Amounts shall be due at the earliest of the following dates:

(1) The date fixed under this contract.

- (2) The date of the first written demand for payment consistent with this contract, including any demand resulting from a default termination.
- (3) The date the Government transmits to the Contractor a proposed supplemental agreement to confirm completed negotiations establishing the amount of debt.
- (4) If this contract provides for revision of prices, the date of written notice to the Contractor stating the amount of refund payable in connection with a pricing proposal or a negotiated pricing agreement not confirmed by contract modification.
- (c) The interest charge made under this clause may be reduced under the procedures prescribed in 32.614-2 of the Federal Acquisition Regulation in effect on the date of this contract.

52.232-23 ASSIGNMENT OF CLAIMS (JAN 1986) - ALTERNATE I (APR 1984)

- (a) The Contractor, under the Assignment of Claims Act, as amended, 31 U.S.C. 3727, 41 U.S.C. 15 (hereafter referred to as "the Act"), may assign its rights to be paid amounts due or to become due as a result of the performance of this contract to a bank, trust company, or other financing institution, including any Federal lending agency. The assignee under such an assignment may thereafter further assign or reassign its right under the original assignment to any type of financing institution described in the preceding sentence. Unless otherwise stated in this contract, payments to an assignee of any amounts due or to become due under this contract shall not, to the extent specified in the Act, be subject to reduction or setoff.
- (b) Any assignment or reassignment authorized under the Act and this clause shall cover all unpaid amounts payable under this contract, and shall not be made to more than one party, except that an assignment or reassignment may be made to one party as agent or trustee for two or more parties participating in the financing of this contract.
- (c) The Contractor shall not furnish or disclose to any assignee under this contract any classified document (including this contract) or information related to work under this contract until the Contracting Officer authorizes such action in writing.

52.232-27 PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS (JUN 1997)

Notwithstanding any other payment terms in this contract, the Government will make invoice payments and contract financing payments under the terms and conditions specified in this clause. Payment shall be considered as being made on the day a check is dated or the date of an electronic funds transfer. Definitions of pertinent terms are set forth in section 32.902 of the Federal Acquisition Regulation. All days referred to in this clause are calendar days, unless otherwise specified. (However, see subparagraph (a)(3) concerning payments due on Saturdays, Sundays, and legal holidays.)

- (a) Invoice payments. (1) Types of invoice payments. For purposes of this clause, there are several types of invoice payments that may occur under this contract, as follows:

- (i) Progress payments, if provided for elsewhere in this contract, based on Contracting Officer approval of the estimated amount and value of work or services performed, including payments for reaching milestones in any project:

(A) The due date for making such payments shall be 14 days after receipt of the payment request by the designated billing office. If the designated billing office fails to annotate the payment request with the actual date of receipt at the time of receipt, the payment due date shall be the 14th day after the date of the Contractor's payment request, provided a proper payment request is received and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(B) The due date for payment of any amounts retained by the Contracting Officer in accordance with the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts, shall be as specified in the contract or, if not specified, 30 days after approval for release to the Contractor by the Contracting Officer.

(ii) Final payments based on completion and acceptance of all work and presentation of release of all claims against the Government arising by virtue of the contract, and payments for partial deliveries that have been accepted by the Government (e.g., each separate building, public work, or other division of the contract for which the price is stated separately in the contract):

(A) The due date for making such payments shall be either the 30th day after receipt by the designated billing office of a proper invoice from the Contractor, or the 30th day after Government acceptance of the work or services completed by the Contractor, whichever is later. If the designated billing office fails to annotate the invoice with the date of actual receipt at the time of receipt, the invoice payment due date shall be the 30th day after the date of the Contractor's invoice, provided a proper invoice is received and there is no disagreement over quantity, quality, or Contractor compliance with contract requirements.

(B) On a final invoice where the payment amount is subject to contract settlement actions (e.g., release of claims), acceptance shall be deemed to have occurred on the effective date of the contract settlement.

(2) Contractor's invoice. The Contractor shall prepare and submit invoices to the designated billing office specified in the contract. A proper invoice must include the items listed in subdivisions (a)(2)(i) through (a)(2)(ix) of this clause. If the invoice does not comply with these requirements, it shall be returned within 7 days after the date the designated billing office received the invoice, with a statement of the reasons why it is not a proper invoice. Untimely notification will be taken into account in computing any interest penalty owed the Contractor in the manner described in subparagraph (a)(4) of this clause.

(i) Name and address of the Contractor.

(ii) Invoice date. (The Contractor is encouraged to date invoices as close as possible to the date of mailing or transmission.)

(iii) Contract number or other authorization for work or services performed (including order number and contract line item number).

(iv) Description of work or services performed.

(v) Delivery and payment terms (e.g., prompt payment discount terms).

(vi) Name and address of Contractor official to whom payment is to be sent (must be the same as that in the contract or in a proper notice of assignment).

(vii) Name (where practicable), title, phone number, and mailing address of person to be notified in the event of a defective invoice.

(viii) For payments described in subdivision (a)(1)(i) of this clause, substantiation of the amounts requested and certification in accordance with the requirements of the clause at 52.232-5, Payments Under Fixed-Price Construction Contracts.

(ix) Any other information or documentation required by the contract.

(x) While not required, the Contractor is strongly encouraged to assign an identification number to each invoice.

(3) Interest penalty. An interest penalty shall be paid automatically by the designated payment office, without request from the Contractor, if payment is not made by the due date and the conditions listed in subdivisions (a)(3)(i) through (a)(3)(iii) of this clause are met, if applicable. However, when the due date falls on a Saturday, Sunday, or legal holiday when Federal Government offices are closed and Government business is not expected to be conducted, payment may be made on the following business day without incurring a late payment interest penalty.

(i) A proper invoice was received by the designated billing office.

(ii) A receiving report or other Government documentation authorizing payment was processed and there was no disagreement over quantity, quality, Contractor compliance with any contract term or condition, or requested progress payment amount.

(iii) In the case of a final invoice for any balance of funds due the Contractor for work or services performed, the amount was not subject to further contract settlement actions between the Government and the Contractor.

(4) Computing penalty amount. The interest penalty shall be at the rate established by the Secretary of the Treasury under section 12 of the Contract Disputes Act of 1978 (41 U.S.C. 611) that is in effect on the day after the due date, except where the interest penalty is prescribed by other governmental authority (e.g., tariffs). This rate is referred to as the "Renegotiation Board Interest Rate," and it is published in the Federal Register semiannually on or about January 1 and July 1. The interest penalty shall accrue daily on the invoice principal payment amount approved by the Government until the payment date of such approved principal amount; and will be compounded in 30-day increments inclusive from the first day after the due date through the payment date. That is, interest accrued at the end of any 30-day period will be added to the approved invoice principal payment amount and will be subject to interest penalties if not paid in the succeeding 30-day period. If the designated billing office failed to notify the Contractor of a defective invoice within the periods prescribed in subparagraph (a)(2) of this clause, the due date on the corrected invoice will be adjusted by subtracting from such date the number of days taken beyond the prescribed notification of defects period. Any interest penalty owed the Contractor will be based on this adjusted due date. Adjustments will be made by the designated payment office for errors in calculating interest penalties.

(i) For the sole purpose of computing an interest penalty that might be due the Contractor for payments described in subdivision (a)(1)(ii) of this clause, Government acceptance or approval shall be deemed to have occurred constructively on the 7th day after the Contractor has completed the work or services in accordance with the terms and conditions of the contract. In the event that actual acceptance or approval occurs within the constructive acceptance or approval period, the determination of an interest penalty shall be based on the actual date of acceptance or approval. Constructive acceptance or constructive approval requirements do not apply if there is a disagreement over quantity, quality, or Contractor compliance with a contract provision. These requirements also do not compel Government officials to accept work or services, approve Contractor estimates, perform contract administration functions, or make payment prior to fulfilling their responsibilities.

(ii) The following periods of time will not be included in the determination of an interest penalty:

(A) The period taken to notify the Contractor of defects in invoices submitted to the Government, but this may not exceed 7 days.

(B) The period between the defects notice and resubmission of the corrected invoice by the Contractor.

(C) For incorrect electronic funds transfer (EFT) information, in accordance with the EFT clause of this contract.

(iii) Interest penalties will not continue to accrue after the filing of a claim for such penalties under the clause at 52.233-1, Disputes, or for more than 1 year. Interest penalties of less than \$1 need not be paid.

(iv) Interest penalties are not required on payment delays due to disagreement between the Government and the Contractor over the payment amount or other issues involving contract compliance, or on amounts temporarily withheld or retained in accordance with the terms of the contract. Claims involving disputes, and any interest that may be payable, will be resolved in accordance with the clause at 52.233-1, Disputes.

(5) Prompt payment discounts. An interest penalty also shall be paid automatically by the designated payment office, without request from the Contractor, if a discount for prompt payment is taken improperly. The interest penalty will be calculated on the amount of discount taken for the period beginning with the first day after the end of the discount period through the date when the Contractor is paid.

(6) Additional interest penalty. (i) If this contract was awarded on or after October 1, 1989, a penalty amount, calculated in accordance with subdivision (a)(6)(iii) of this clause, shall be paid in addition to the interest penalty amount if the Contractor--

(A) Is owed an interest penalty of \$1 or more;

(B) Is not paid the interest penalty within 10 days after the date the invoice amount is paid; and

(C) Makes a written demand to the designated payment office for additional penalty payment, in accordance with subdivision (a)(6)(ii) of this clause, postmarked not later than 40 days after the date the invoice amount is paid.

(ii)(A) Contractors shall support written demands for additional penalty payments with the following data. No additional data shall be required. Contractors shall--

(1) Specifically assert that late payment interest is due under a specific invoice, and request payment of all overdue late payment interest penalty and such additional penalty as may be required;

(2) Attach a copy of the invoice on which the unpaid late payment interest was due; and

(3) State that payment of the principal has been received, including the date of receipt.

(B) Demands must be postmarked on or before the 40th day after payment was made, except that--

(1) If the postmark is illegible or nonexistent, the demand must have been received and annotated with the date of receipt by the designated payment office on or before the 40th day after payment was made; or

(2) If the postmark is illegible or nonexistent and the designated payment office fails to make the required annotation, the demand's validity will be determined by the date the Contractor has placed on the demand; provided such date is no later than the 40th day after payment was made.

(iii)(A) The additional penalty shall be equal to 100 percent of any original late payment interest penalty, except--

(1) The additional penalty shall not exceed \$5,000;

(2) The additional penalty shall never be less than \$25; and

(3) No additional penalty is owed if the amount of the underlying interest penalty is less than \$1.

(B) If the interest penalty ceases to accrue in accordance with the limits stated in subdivision (a)(4)(iii) of this clause, the amount of the additional penalty shall be calculated on the amount of interest penalty that would have accrued in the absence of these limits, subject to the overall limits on the additional penalty specified in subdivision (a)(6)(iii)(A) of this clause.

(C) For determining the maximum and minimum additional penalties, the test shall be the interest penalty due on

each separate payment made for each separate contract. The maximum and minimum additional penalty shall not be based upon individual invoices unless the invoices are paid separately. Where payments are consolidated for disbursing purposes, the maximum and minimum additional penalty determination shall be made separately for each contract therein.

(D) The additional penalty does not apply to payments regulated by other Government regulations (e.g., payments under utility contracts subject to tariffs and regulation).

(b) Contract financing payments. (1) Due dates for recurring financing payments. If this contract provides for contract financing, requests for payment shall be submitted to the designated billing office as specified in this contract or as directed by the Contracting Officer. Contract financing payments shall be made on the [insert day as prescribed by Agency head; if not prescribed, insert 30th day] day after receipt of a proper contract financing request by the designated billing office. In the event that an audit or other review of a specific financing request is required to ensure compliance with the terms and conditions of the contract, the designated payment office is not compelled to make payment by the due date specified.

(2) Due dates for other contract financing. For advance payments, loans, or other arrangements that do not involve recurring submissions of contract financing requests, payment shall be made in accordance with the corresponding contract terms or as directed by the Contracting Officer.

(3) Interest penalty not applicable. Contract financing payments shall not be assessed an interest penalty for payment delays.

(c) Subcontract clause requirements. The Contractor shall include in each subcontract for property or services (including a material supplier) for the purpose of performing this contract the following:

(1) Prompt payment for subcontractors. A payment clause that obligates the Contractor to pay the subcontractor for satisfactory performance under its subcontract not later than 7 days from receipt of payment out of such amounts as are paid to the Contractor under this contract.

(2) Interest for subcontractors. An interest penalty clause that obligates the Contractor to pay to the subcontractor an interest penalty for each payment not made in accordance with the payment clause--

(i) For the period beginning on the day after the required payment date and ending on the date on which payment of the amount due is made; and

(ii) Computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contract Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(3) Subcontractor clause flowdown. A clause requiring each subcontractor to include a payment clause and an interest penalty clause conforming to the standards set forth in subparagraphs (c)(1) and (c)(2) of this clause in each of its subcontracts, and to require each of its subcontractors to include such clauses in their subcontracts with each lower-tier subcontractor or supplier.

(d) Subcontract clause interpretation. The clauses required by paragraph (c) of this clause shall not be construed to impair the right of the Contractor or a subcontractor at any tier to negotiate, and to include in their subcontract, provisions that--

(1) Retainage permitted. Permit the Contractor or a subcontractor to retain (without cause) a specified percentage of each progress payment otherwise due to a subcontractor for satisfactory performance under the subcontract without incurring any obligation to pay a late payment interest penalty, in accordance with terms and conditions agreed to by the parties to the subcontract, giving such recognition as the parties deem appropriate to the ability of a subcontractor to furnish a performance bond and a payment bond;

(2) Withholding permitted. Permit the Contractor or subcontractor to make a determination that part or all of the subcontractor's request for payment may be withheld in accordance with the subcontract agreement; and

(3) Withholding requirements. Permit such withholding without incurring any obligation to pay a late payment penalty if--

(i) A notice conforming to the standards of paragraph (g) of this clause previously has been furnished to the subcontractor; and

(ii) A copy of any notice issued by a Contractor pursuant to subdivision (d)(3)(i) of this clause has been furnished to the Contracting Officer.

(e) Subcontractor withholding procedures. If a Contractor, after making a request for payment to the Government but before making a payment to a subcontractor for the subcontractor's performance covered by the payment request, discovers that all or a portion of the payment otherwise due such subcontractor is subject to withholding from the subcontractor in accordance with the subcontract agreement, then the Contractor shall--

(1) Subcontractor notice. Furnish to the subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon ascertaining the cause giving rise to a withholding, but prior to the due date for subcontractor payment;

(2) Contracting Officer notice. Furnish to the Contracting Officer, as soon as practicable, a copy of the notice furnished to the subcontractor pursuant to subparagraph (e)(1) of this clause;

(3) Subcontractor progress payment reduction. Reduce the subcontractor's progress payment by an amount not to exceed the amount specified in the notice of withholding furnished under subparagraph (e)(1) of this clause;

(4) Subsequent subcontractor payment. Pay the subcontractor as soon as practicable after the correction of the identified subcontract performance deficiency, and--

(i) Make such payment within--

(A) Seven days after correction of the identified subcontract performance deficiency (unless the funds therefor must be recovered from the Government because of a reduction under subdivision (e)(5)(i)) of this clause; or

(B) Seven days after the Contractor recovers such funds from the Government; or

(ii) Incur an obligation to pay a late payment interest penalty computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty;

(5) Notice to Contracting Officer. Notify the Contracting Officer upon--

(i) Reduction of the amount of any subsequent certified application for payment; or

(ii) Payment to the subcontractor of any withheld amounts of a progress payment, specifying--

(A) The amounts withheld under subparagraph (e)(1) of this clause; and

(B) The dates that such withholding began and ended; and

(6) Interest to Government. Be obligated to pay to the Government an amount equal to interest on the withheld payments (computed in the manner provided in 31 U.S.C. 3903(c)(1)), from the 8th day after receipt of the withheld amounts from the Government until--

(i) The day the identified subcontractor performance deficiency is corrected; or

(ii) The date that any subsequent payment is reduced under subdivision (e)(5)(i) of this clause.

(f) Third-party deficiency reports. (1) Withholding from subcontractor. If a Contractor, after making payment to a first-tier subcontractor, receives from a supplier or subcontractor of the first-tier subcontractor (hereafter referred to as a "second-tier subcontractor") a written notice in accordance with section 2 of the Act of August 24, 1935 (40 U.S.C. 270b, Miller Act), asserting a deficiency in such first-tier subcontractor's performance under the contract for which the Contractor may be ultimately liable, and the Contractor determines that all or a portion of future payments otherwise due such first-tier subcontractor is subject to withholding in accordance with the subcontract agreement, the Contractor may, without incurring an obligation to pay an interest penalty under subparagraph (e)(6) of this clause--

(i) Furnish to the first-tier subcontractor a notice conforming to the standards of paragraph (g) of this clause as soon as practicable upon making such determination; and

(ii) Withhold from the first-tier subcontractor's next available progress payment or payments an amount not to exceed the amount specified in the notice of withholding furnished under subdivision (f)(1)(i) of this clause.

(2) Subsequent payment or interest charge. As soon as practicable, but not later than 7 days after receipt of satisfactory written notification that the identified subcontract performance deficiency has been corrected, the Contractor shall--

(i) Pay the amount withheld under subdivision (f)(1)(ii) of this clause to such first-tier subcontractor; or

(ii) Incur an obligation to pay a late payment interest penalty to such first-tier subcontractor computed at the rate of interest established by the Secretary of the Treasury, and published in the Federal Register, for interest payments under section 12 of the Contracts Disputes Act of 1978 (41 U.S.C. 611) in effect at the time the Contractor accrues the obligation to pay an interest penalty.

(g) Written notice of subcontractor withholding. A written notice of any withholding shall be issued to a subcontractor (with a copy to the Contracting Officer of any such notice issued by the Contractor), specifying--

(1) The amount to be withheld;

(2) The specific causes for the withholding under the terms of the subcontract; and

(3) The remedial actions to be taken by the subcontractor in order to receive payment of the amounts withheld.

(h) Subcontractor payment entitlement. The Contractor may not request payment from the Government of any amount withheld or retained in accordance with paragraph (d) of this clause until such time as the Contractor has determined and certified to the Contracting Officer that the subcontractor is entitled to the payment of such amount.

(i) Prime-subcontractor disputes. A dispute between the Contractor and subcontractor relating to the amount or entitlement of a subcontractor to a payment or a late payment interest penalty under a clause included in the subcontract pursuant to paragraph (c) of this clause does not constitute a dispute to which the United States is a party. The United States may not be interpleaded in any judicial or administrative proceeding involving such a dispute.

(j) Preservation of prime-subcontractor rights. Except as provided in paragraph (i) of this clause, this clause shall not limit or impair any contractual, administrative, or judicial remedies otherwise available to the Contractor or a subcontractor in the event of a dispute involving late payment or nonpayment by the Contractor or deficient subcontract performance or nonperformance by a subcontractor.

(k) Non-recourse for prime contractor interest penalty. The Contractor's obligation to pay an interest penalty to a subcontractor pursuant to the clauses included in a subcontract under paragraph (c) of this clause shall not be construed to be an obligation of the United States for such interest penalty. A cost-reimbursement claim may not include any amount for reimbursement of such interest penalty.

52.232-33 PAYMENT BY ELECTRONIC FUNDS TRANSFER—CENTRAL CONTRACTOR REGISTRATION (MAY 1999)

(a) Method of payment. (1) All payments by the Government under this contract shall be made by electronic funds transfer (EFT), except as provided in paragraph (a)(2) of this clause. As used in this clause, the term "EFT" refers to the funds transfer and may also include the payment information transfer.

(2) In the event the Government is unable to release one or more payments by EFT, the Contractor agrees to either--

(i) Accept payment by check or some other mutually agreeable method of payment; or

(ii) Request the Government to extend the payment due date until such time as the Government can make payment by EFT (but see paragraph (d) of this clause).

(b) Contractor's EFT information. The Government shall make payment to the Contractor using the EFT information contained in the Central Contractor Registration (CCR) database. In the event that the EFT information changes, the Contractor shall be responsible for providing the updated information to the CCR database.

(c) Mechanisms for EFT payment. The Government may make payment by EFT through either the Automated Clearing House (ACH) network, subject to the rules of the National Automated Clearing House Association, or the Fedwire Transfer System. The rules governing Federal payments through the ACH are contained in 31 CFR part 210.

(d) Suspension of payment. If the Contractor's EFT information in the CCR database is incorrect, then the Government need not make payment to the Contractor under this contract until correct EFT information is entered into the CCR database; and any invoice or contract financing request shall be deemed not to be a proper invoice for the purpose of prompt payment under this contract. The prompt payment terms of the contract regarding notice of an improper invoice and delays in accrual of interest penalties apply.

(e) Contractor EFT arrangements. If the Contractor has identified multiple payment receiving points (i.e., more than one remittance address and/or EFT information set) in the CCR database, and the Contractor has not notified the Government of the payment receiving point applicable to this contract, the Government shall make payment to the first payment receiving point (EFT information set or remittance address as applicable) listed in the CCR database.

(f) Liability for uncompleted or erroneous transfers. (1) If an uncompleted or erroneous transfer occurs because the Government used the Contractor's EFT information incorrectly, the Government remains responsible for--

(i) Making a correct payment;

(ii) Paying any prompt payment penalty due; and

(iii) Recovering any erroneously directed funds.

(2) If an uncompleted or erroneous transfer occurs because the Contractor's EFT information was incorrect, or was revised within 30 days of Government release of the EFT payment transaction instruction to the Federal Reserve System, and--

- (i) If the funds are no longer under the control of the payment office, the Government is deemed to have made payment and the Contractor is responsible for recovery of any erroneously directed funds; or
- (ii) If the funds remain under the control of the payment office, the Government shall not make payment, and the provisions of paragraph (d) of this clause shall apply.
- (g) EFT and prompt payment. A payment shall be deemed to have been made in a timely manner in accordance with the prompt payment terms of this contract if, in the EFT payment transaction instruction released to the Federal Reserve System, the date specified for settlement of the payment is on or before the prompt payment due date, provided the specified payment date is a valid date under the rules of the Federal Reserve System.
- (h) EFT and assignment of claims. If the Contractor assigns the proceeds of this contract as provided for in the assignment of claims terms of this contract, the Contractor shall require as a condition of any such assignment, that the assignee shall register in the CCR database and shall be paid by EFT in accordance with the terms of this clause. In all respects, the requirements of this clause shall apply to the assignee as if it were the Contractor. EFT information that shows the ultimate recipient of the transfer to be other than the Contractor, in the absence of a proper assignment of claims acceptable to the Government, is incorrect EFT information within the meaning of paragraph (d) of this clause.
- (i) Liability for change of EFT information by financial agent. The Government is not liable for errors resulting from changes to EFT information made by the Contractor's financial agent.
- (j) Payment information. The payment or disbursing office shall forward to the Contractor available payment information that is suitable for transmission as of the date of release of the EFT instruction to the Federal Reserve System. The Government may request the Contractor to designate a desired format and method(s) for delivery of payment information from a list of formats and methods the payment office is capable of executing. However, the Government does not guarantee that any particular format or method of delivery is available at any particular payment office and retains the latitude to use the format and delivery method most convenient to the Government. If the Government makes payment by check in accordance with paragraph (a) of this clause, the Government shall mail the payment information to the remittance address contained in the CCR database.

(End of Clause)

52.232-35 DESIGNATION OF OFFICE FOR GOVERNMENT RECEIPT OF ELECTRONIC FUNDS
TRANSFER INFORMATION (MAY 1999)

- (a) As provided in paragraph (b) of the clause at 52.232-34, Payment by Electronic Funds Transfer--Other than Central Contractor Registration, the Government has designated the office cited in paragraph (c) of this clause as the office to receive the Contractor's electronic funds transfer (EFT) information, in lieu of the payment office of this contract.
- (b) The Contractor shall send all EFT information, and any changes to EFT information to the office designated in paragraph (c) of this clause. The Contractor shall not send EFT information to the payment office, or any other office than that designated in paragraph (c). The Government need not use any EFT information sent to any office other than that designated in paragraph (c).

(c) Designated Office:

Mailing Address:

U.S. Army Corps of Engineers
St. Paul District
190 East Fifth Street
St. Paul, MN 55101-1638

Telephone Number:

651/290-5233

Person to Contact:

Mr. Wayne Scheffel, CEMVP-RM-F

Electronic Address:

wayne.scheffel@usace.army.mil

(End of clause)

52.233-1 DISPUTES. (DEC 1998)

(a) This contract is subject to the Contract Disputes Act of 1978, as amended (41 U.S.C. 601-613).

(b) Except as provided in the Act, all disputes arising under or relating to this contract shall be resolved under this clause.

(c) "Claim," as used in this clause, means a written demand or written assertion by one of the contracting parties seeking, as a matter of right, the payment of money in a sum certain, the adjustment or interpretation of contract terms, or other relief arising under or relating to this contract. A claim arising under a contract, unlike a claim relating to that contract, is a claim that can be resolved under a contract clause that provides for the relief sought by the claimant. However, a written demand or written assertion by the Contractor seeking the payment of money exceeding \$100,000 is not a claim under the Act until certified as required by subparagraph (d)(2) of this clause. A voucher, invoice, or other routine request for payment that is not in dispute when submitted is not a claim under the Act. The submission may be converted to a claim under the Act, by complying with the submission and certification requirements of this clause, if it is disputed either as to liability or amount or is not acted upon in a reasonable time.

(d)(1) A claim by the Contractor shall be made in writing and, unless otherwise stated in this contract, submitted within 6 years after accrual of the claim to the Contracting Officer for a written decision. A claim by the Government against the Contractor shall be subject to a written decision by the Contracting Officer.

(2)(i) The contractors shall provide the certification specified in subparagraph (d)(2)(iii) of this clause when submitting any claim -

(A) Exceeding \$100,000; or

(B) Regardless of the amount claimed, when using -

(1) Arbitration conducted pursuant to 5 U.S.C. 575-580; or

(2) Any other alternative means of dispute resolution (ADR) technique that the agency elects to handle in accordance with the Administrative Dispute Resolution Act (ADRA).

(ii) The certification requirement does not apply to issues in controversy that have not been submitted as all or part of a claim.

(iii) The certification shall state as follows: "I certify that the claim is made in good faith; that the supporting data are accurate and complete to the best of my knowledge and belief; that the amount requested accurately reflects the contract adjustment for which the Contractor believes the Government is liable; and that I am duly authorized to certify the claim on behalf of the Contractor.

(3) The certification may be executed by any person duly authorized to bind the Contractor with respect to the claim.

(e) For Contractor claims of \$100,000 or less, the Contracting Officer must, if requested in writing by the Contractor, render a decision within 60 days of the request. For Contractor-certified claims over \$100,000, the Contracting Officer must, within 60 days, decide the claim or notify the Contractor of the date by which the decision will be made.

(f) The Contracting Officer's decision shall be final unless the Contractor appeals or files a suit as provided in the Act.

(g) If the claim by the Contractor is submitted to the Contracting Officer or a claim by the Government is presented to the Contractor, the parties, by mutual consent, may agree to use alternative dispute resolution (ADR). If the Contractor refuses an offer for ADR, the Contractor shall inform the Contracting Officer, in writing, of the Contractor's specific reasons for rejecting the request.

(h) The Government shall pay interest on the amount found due and unpaid from (1) the date the Contracting Officer receives the claim (certified, if required); or (2) the date that payment otherwise would be due, if that date is later, until the date of payment. With regard to claims having defective certifications, as defined in (FAR) 48 CFR 33.201, interest shall be paid from the date that the Contracting Officer initially receives the claim. Simple interest on claims shall be paid at the rate, fixed by the Secretary of the Treasury as provided in the Act, which is applicable to the period during which the Contracting Officer receives the claim and then at the rate applicable for each 6-month period as fixed by the Treasury Secretary during the pendency of the claim.

(i) The Contractor shall proceed diligently with performance of this contract, pending final resolution of any request for relief, claim, appeal, or action arising under the contract, and comply with any decision of the Contracting Officer.

(End of clause)

52.233-3 *PROTEST AFTER AWARD (AUG. 1996)*

(a) Upon receipt of a notice of protest (as defined in FAR 33.101) or a determination that a protest is likely (see FAR 33.102(d)), the Contracting Officer may, by written order to the Contractor, direct the Contractor to stop performance of the work called for by this contract. The order shall be specifically identified as a stop-work order issued under this clause. Upon receipt of the order, the Contractor shall immediately comply with its terms and take all reasonable steps to minimize the incurrence of costs allocable to the work covered by the order during the period of work stoppage. Upon receipt of the final decision in the protest, the Contracting Officer shall either--

(1) Cancel the stop-work order; or

(2) Terminate the work covered by the order as provided in the Default, or the Termination for Convenience of the Government, clause of this contract.

(b) If a stop-work order issued under this clause is canceled either before or after a final decision in the protest, the Contractor shall resume work. The Contracting Officer shall make an equitable adjustment in the delivery schedule or contract price, or both, and the contract shall be modified, in writing, accordingly, if--

- (1) The stop-work order results in an increase in the time required for, or in the Contractor's cost properly allocable to, the performance of any part of this contract; and
- (2) The Contractor asserts its right to an adjustment within 30 days after the end of the period of work stoppage; provided, that if the Contracting Officer decides the facts justify the action, the Contracting Officer may receive and act upon a proposal at any time before final payment under this contract.
- (c) If a stop-work order is not canceled and the work covered by the order is terminated for the convenience of the Government, the Contracting Officer shall allow reasonable costs resulting from the stop-work order in arriving at the termination settlement.
- (d) If a stop-work order is not canceled and the work covered by the order is terminated for default, the Contracting Officer shall allow, by equitable adjustment or otherwise, reasonable costs resulting from the stop-work order.
- (e) The Government's rights to terminate this contract at any time are not affected by action taken under this clause.
- (f) If, as the result of the Contractor's intentional or negligent misstatement, misrepresentation, or miscertification, a protest related to this contract is sustained, and the Government pays costs, as provided in FAR 33.102(b)(2) or 33.104(h)(1), the Government may require the Contractor to reimburse the Government the amount of such costs. In addition to any other remedy available, and pursuant to the requirements of Subpart 32.6, the Government may collect this debt by offsetting the amount against any payment due the Contractor under any contract between the Contractor and the Government.

52.236-1 PERFORMANCE OF WORK BY THE CONTRACTOR (APR 1984)

The Contractor shall perform on the site, and with its own organization, work equivalent to at least twenty percent (20%) of the total amount of work to be performed under the contract. This percentage may be reduced by a supplemental agreement to this contract if, during performing the work, the Contractor requests a reduction and the Contracting Officer determines that the reduction would be to the advantage of the Government.

52.236-2 DIFFERING SITE CONDITIONS (APR 1984)

As prescribed in 36.502, insert the following clause in solicitations and contracts when a fixed-price construction contract or a fixed-price dismantling, demolition, or removal of improvements contract is contemplated and the contract amount is expected to exceed the small purchase limitation. The Contracting Officer may insert the clause in solicitations and contracts when a fixed-price construction or a fixed-price contract for dismantling, demolition, or removal of improvements is contemplated and the contract amount is expected to be within the small purchase limitation.

(a) The Contractor shall promptly, and before the conditions are disturbed, give a written notice to the Contracting Officer of

- (1) subsurface or latent physical conditions at the site which differ materially from those indicated in this contract, or
- (2) unknown physical conditions at the site, of an unusual nature, which differ materially from those ordinarily encountered and generally recognized as inhering in work of the character provided for in the contract.

(b) The Contracting Officer shall investigate the site conditions promptly after receiving the notice. If the conditions do materially so differ and cause an increase or decrease in the Contractor's cost of, or the time required for, performing any part of the work under this contract, whether or not changed as a result of the conditions, an equitable adjustment shall be made under this clause and the contract modified in writing accordingly.

(c) No request by the Contractor for an equitable adjustment to the contract under this clause shall be allowed, unless the Contractor has given the written notice required; provided, that the time prescribed in (a) above for giving written notice may be extended by the Contracting Officer.

(d) No request by the Contractor for an equitable adjustment to the contract for differing site conditions shall be allowed if made after final payment under this contract.

52.236-3 SITE INVESTIGATION AND CONDITIONS AFFECTING THE WORK (APR 1984)

(a) The Contractor acknowledges that it has taken steps reasonably necessary to ascertain the nature and location of the work, and that it has investigated and satisfied itself as to the general and local conditions which can affect the work or its cost, including but not limited to

(1) conditions bearing upon transportation, disposal, handling, and storage of materials;

(2) the availability of labor, water, electric power, and roads;

(3) uncertainties of weather, river stages, tides, or similar physical conditions at the site;

(4) the conformation and conditions of the ground; and (5) the character of equipment and facilities needed preliminary to and during work performance. The Contractor also acknowledges that it has satisfied itself as to the character, quality, and quantity of surface and subsurface materials or obstacles to be encountered insofar as this information is reasonably ascertainable from an inspection of the site, including all exploratory work done by the Government, as well as from the drawings and specifications made a part of this contract. Any failure of the Contractor to take the actions described and acknowledged in this paragraph will not relieve the Contractor from responsibility for estimating properly the difficulty and cost of successfully performing the work, or for proceeding to successfully perform the work without additional expense to the Government.

(b) The Government assumes no responsibility for any conclusions or interpretations made by the Contractor based on the information made available by the Government. Nor does the Government assume responsibility for any understanding reached or representation made concerning conditions which can affect the work by any of its officers or agents before the execution of this contract, unless that understanding or representation is expressly stated in this contract.

52.236-5 MATERIAL AND WORKMANSHIP (APR 1984)

(a) All equipment, material, and articles incorporated into the work covered by this contract shall be new and of the most suitable grade for the purpose intended, unless otherwise specifically provided in this contract. References in the specifications to equipment, material, articles, or patented processes by trade name, make, or catalog number, shall be regarded as establishing a standard of quality and shall not be construed as limiting competition. The Contractor may, at its option, use any equipment, material, article, or process that, in the judgment of the Contracting Officer, is equal to that named in the specifications, unless otherwise specifically provided in this contract.

(b) The Contractor shall obtain the Contracting Officer's approval of the machinery and mechanical and other equipment to be incorporated into the work. When requesting approval, the Contractor shall furnish to the Contracting Officer the name of the manufacturer, the model number, and other information concerning the performance, capacity, nature, and rating of the machinery and mechanical and other equipment. When required by this contract or by the Contracting Officer, the Contractor shall also obtain the Contracting Officer's approval of the material or articles which the Contractor contemplates incorporating into the work. When requesting approval, the Contractor shall provide full information concerning the material or articles. When directed to do so, the Contractor shall submit samples for approval at the Contractor's expense, with all shipping charges prepaid. Machinery, equipment, material, and articles that do not have the required approval shall be installed or used at the risk of subsequent rejection.

(c) All work under this contract shall be performed in a skillful and workmanlike manner. The Contracting Officer may require, in writing, that the Contractor remove from the work any employee the Contracting Officer deems incompetent, careless, or otherwise objectionable.

52.236-6 SUPERINTENDENCE BY THE CONTRACTOR (APR 1984)

At all times during performance of this contract and until the work is completed and accepted, the Contractor shall directly superintend the work or assign and have on the worksite a competent superintendent who is satisfactory to the Contracting Officer and has authority to act for the Contractor.

52.236-7 PERMITS AND RESPONSIBILITIES (NOV 1991)

The Contractor shall, without additional expense to the Government, be responsible for obtaining any necessary licenses and permits, and for complying with any Federal, State, and municipal laws, codes, and regulations applicable to the performance of the work. The Contractor shall also be responsible for all damages to persons or property that occur as a result of the Contractor's fault or negligence. The Contractor shall also be responsible for all materials delivered and work performed until completion and acceptance of the entire work, except for any completed unit of work which may have been accepted under the contract.

52.236-8 OTHER CONTRACTS (APR 1984)

The Government may undertake or award other contracts for additional work at or near the site of the work under this contract. The Contractor shall fully cooperate with the other contractors and with Government employees and shall carefully adapt scheduling and performing the work under this contract to accommodate the additional work, heeding any direction that may be provided by the Contracting Officer. The Contractor shall not commit or permit any act that will interfere with the performance of work by any other contractor or by Government employees.

52.236-9 PROTECTION OF EXISTING VEGETATION, STRUCTURES, EQUIPMENT, UTILITIES, AND IMPROVEMENTS (APR 1984)

(a) The Contractor shall preserve and protect all structures, equipment, and vegetation (such as trees, shrubs, and grass) on or adjacent to the work site, which are not to be removed and which do not unreasonably interfere with the work required under this contract. The Contractor shall only remove trees when specifically authorized to do so, and shall avoid damaging vegetation that will remain in place. If any limbs or branches of trees are broken during contract performance, or by the careless operation of equipment, or by workmen, the Contractor shall trim those limbs or branches with a clean cut and paint the cut with a tree-pruning compound as directed by the Contracting Officer.

(b) The Contractor shall protect from damage all existing improvements and utilities

(1) at or near the work site, and

(2) on adjacent property of a third party, the locations of which are made known to or should be known by the Contractor. The Contractor shall repair any damage to those facilities, including those that are the property of a third party, resulting from failure to comply with the requirements of this contract or failure to exercise reasonable care in performing the work. If the Contractor fails or refuses to repair the damage promptly, the Contracting Officer may have the necessary work performed and charge the cost to the Contractor.

52.236-10 OPERATIONS AND STORAGE AREAS (APR 1984)

(a) The Contractor shall confine all operations (including storage of materials) on Government premises to areas authorized or approved by the Contracting Officer. The Contractor shall hold and save the Government, its officers and agents, free and harmless from liability of any nature occasioned by the Contractor's performance.

(b) Temporary buildings (e.g., storage sheds, shops, offices) and utilities may be erected by the Contractor only with the approval of the Contracting Officer and shall be built with labor and materials furnished by the Contractor without expense to the Government. The temporary buildings and utilities shall remain the property of the Contractor and shall be removed by the Contractor at its expense upon completion of the work. With the written consent of the Contracting Officer, the buildings and utilities may be abandoned and need not be removed.

(c) The Contractor shall, under regulations prescribed by the Contracting Officer, use only established roadways, or use temporary roadways constructed by the Contractor when and as authorized by the Contracting Officer. When materials are transported in prosecuting the work, vehicles shall not be loaded beyond the loading capacity recommended by the manufacturer of the vehicle or prescribed by any Federal, State, or local law or regulation. When it is necessary to cross curbs or sidewalks, the Contractor shall protect them from damage. The Contractor shall repair or pay for the repair of any damaged curbs, sidewalks, or roads.

52.236-11 USE AND POSSESSION PRIOR TO COMPLETION (APR 1984)

(a) The Government shall have the right to take possession of or use any completed or partially completed part of the work. Before taking possession of or using any work, the Contracting Officer shall furnish the Contractor a list of items of work remaining to be performed or corrected on those portions of the work that the Government intends

to take possession of or use. However, failure of the Contracting Officer to list any item of work shall not relieve the Contractor of responsibility for complying with the terms of the contract. The Government's possession or use shall not be deemed an acceptance of any work under the contract.

(b) While the Government has such possession or use, the Contractor shall be relieved of the responsibility for the loss of or damage to the work resulting from the Government's possession or use, notwithstanding the terms of the clause in this contract entitled "Permits and Responsibilities." If prior possession or use by the Government delays the progress of the work or causes additional expense to the Contractor, an equitable adjustment shall be made in the contract price or the time of completion, and the contract shall be modified in writing accordingly.

52.236-12 CLEANING UP (APR 1984)

The Contractor shall at all times keep the work area, including storage areas, free from accumulations of waste materials. Before completing the work, the Contractor shall remove from the work and premises any rubbish, tools, scaffolding, equipment, and materials that are not the property of the Government. Upon completing the work, the Contractor shall leave the work area in a clean, neat, and orderly condition satisfactory to the Contracting Officer.

52.236-13 ACCIDENT PREVENTION (NOV 1991) – ALTERNATE I (NOV 1991)

(a) The Contractor shall provide and maintain work environments and procedures which will

(1) safeguard the public and Government personnel, property, materials, supplies, and equipment exposed to Contractor operations and activities;

(2) avoid interruptions of Government operations and delays in project completion dates; and

(3) control costs in the performance of this contract.

(b) For these purposes on contracts for construction or dismantling, demolition, or removal of improvements, the Contractor shall-

(1) Provide appropriate safety barricades, signs, and signal lights;

(2) Comply with the standards issued by the Secretary of Labor at 29 CFR Part 1926 and 29 CFR Part 1910; and

(3) Ensure that any additional measures the Contracting Officer determines to be reasonably necessary for the purposes are taken.

(c) If this contract is for construction or dismantling, demolition or removal of improvements with any Department of Defense agency or component, the Contractor shall comply with all pertinent provisions of the latest version of U.S. Army Corps of Engineers Safety and Health Requirements Manual, EM 385-1-1, in effect on the date of the solicitation.

(d) Whenever the Contracting Officer becomes aware of any noncompliance with these requirements or any condition which poses a serious or imminent danger to the health or safety of the public or Government personnel, the Contracting Officer shall notify the Contractor orally, with written confirmation, and request immediate initiation of corrective action. This notice, when delivered to the Contractor or the Contractor's representative at the work site, shall be deemed sufficient notice of the noncompliance and that corrective action is required. After

receiving the notice, the Contractor shall immediately take corrective action. If the Contractor fails or refuses to promptly take corrective action, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. The Contractor shall not be entitled to any equitable adjustment of the contract price or extension of the performance schedule on any stop work order issued under this clause.

(e) The Contractor shall insert this clause, including this paragraph (e), with appropriate changes in the designation of the parties, in subcontracts.

(f) Before commencing the work, the Contractor shall-

(1) Submit a written proposed plan for implementing this clause. The plan shall include an analysis of the significant hazards to life, limb, and property inherent in contract work performance and a plan for controlling these hazards; and

(2) Meet with representatives of the Contracting Officer to discuss and develop a mutual understanding relative to administration of the overall safety program.

52.236-15 SCHEDULES FOR CONSTRUCTION CONTRACTS (APR 1984)

(a) The Contractor shall, within five days after the work commences on the contract or another period of time determined by the Contracting Officer, prepare and submit to the Contracting Officer for approval three copies of a practicable schedule showing the order in which the Contractor proposes to perform the work, and the dates on which the Contractor contemplates starting and completing the several salient features of the work (including acquiring materials, plant, and equipment). The schedule shall be in the form of a progress chart of suitable scale to indicate appropriately the percentage of work scheduled for completion by any given date during the period. If the Contractor fails to submit a schedule within the time prescribed, the Contracting Officer may withhold approval of progress payments until the Contractor submits the required schedule.

(b) The Contractor shall enter the actual progress on the chart as directed by the Contracting Officer, and upon doing so shall immediately deliver three copies of the annotated schedule to the Contracting Officer. If, in the opinion of the Contracting Officer, the Contractor falls behind the approved schedule, the Contractor shall take steps necessary to improve its progress, including those that may be required by the Contracting Officer, without additional cost to the Government. In this circumstance, the Contracting Officer may require the Contractor to increase the number of shifts, overtime operations, days of work, and/or the amount of construction plant, and to submit for approval any supplementary schedule or schedules in chart form as the Contracting Officer deems necessary to demonstrate how the approved rate of progress will be regained.

(c) Failure of the Contractor to comply with the requirements of the Contracting Officer under this clause shall be grounds for a determination by the Contracting Officer that the Contractor is not prosecuting the work with sufficient diligence to ensure completion within the time specified in the contract. Upon making this determination, the Contracting Officer may terminate the Contractor's right to proceed with the work, or any separable part of it, in accordance with the default terms of this contract.

52.236-16 QUANTITY SURVEYS (APR 1984)

(a) Quantity surveys shall be conducted, and the data derived from these surveys shall be used in computing the quantities of work performed and the actual construction completed and in place.

(b) The Government shall conduct the original and final surveys and make the computations based on them. The Contractor shall conduct the surveys for any periods for which progress payments are requested and shall make the computations based on these surveys. All surveys conducted by the Contractor shall be conducted under the direction of a representative of the Contracting Officer, unless the Contracting Officer waives this requirement in a specific instance.

(c) Promptly upon completing a survey, the Contractor shall furnish the originals of all field notes and all other records relating to the survey or to the layout of the work to the Contracting Officer, who shall use them as necessary to determine the amount of progress payments. The Contractor shall retain copies of all such material furnished to the Contracting Officer.

52.236-17 LAYOUT OF WORK (APR 1984)

The Contractor shall lay out its work from Government established base lines and bench marks indicated on the drawings, and shall be responsible for all measurements in connection with the layout. The Contractor shall furnish, at its own expense, all stakes, templates, platforms, equipment, tools, materials, and labor required to lay out any part of the work. The Contractor shall be responsible for executing the work to the lines and grades that may be established or indicated by the Contracting Officer. The Contractor shall also be responsible for maintaining and preserving all stakes and other marks established by the Contracting Officer until authorized to remove them. If such marks are destroyed by the Contractor or through its negligence before their removal is authorized, the Contracting Officer may replace them and deduct the expense of the replacement from any amounts due or to become due to the Contractor.

52.236-21 SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION (FEB 1997)

(a) The Contractor shall keep on the work site a copy of the drawings and specifications and shall at all times give the Contracting Officer access thereto. Anything mentioned in the specifications and not shown on the drawings, or shown on the drawings and not mentioned in the specifications, shall be of like effect as if shown or mentioned in both. In case of difference between drawings and specifications, the specifications shall govern. In case of discrepancy in the figures, in the drawings, or in the specifications, the matter shall be promptly submitted to the Contracting Officer, who shall promptly make a determination in writing. Any adjustment by the Contractor without such a determination shall be at its own risk and expense. The Contracting Officer shall furnish from time to time such detailed drawings and other information as considered necessary, unless otherwise provided.

(b) Wherever in the specifications or upon the drawings the words "directed", "required", "ordered", "designated", "prescribed", or words of like import are used, it shall be understood that the "direction", "requirement", "order", "designation", or "prescription", of the Contracting Officer is intended and similarly the words "approved", "acceptable", "satisfactory", or words of like import shall mean "approved by," or "acceptable to", or "satisfactory to" the Contracting Officer, unless otherwise expressly stated.

(c) Where "as shown," "as indicated", "as detailed", or words of similar import are used, it shall be understood that the reference is made to the drawings accompanying this contract unless stated otherwise. The word "provided" as used herein shall be understood to mean "provide complete in place," that is "furnished and installed".

(d) Shop drawings means drawings, submitted to the Government by the Contractor, subcontractor, or any lower tier subcontractor pursuant to a construction contract, showing in detail (1) the proposed fabrication and assembly of structural elements, and (2) the installation (i.e., fit, and attachment details) of materials or equipment. It includes drawings, diagrams, layouts, schematics, descriptive literature, illustrations, schedules, performance and test data,

and similar materials furnished by the contractor to explain in detail specific portions of the work required by the contract. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(e) If this contract requires shop drawings, the Contractor shall coordinate all such drawings, and review them for accuracy, completeness, and compliance with contract requirements and shall indicate its approval thereon as evidence of such coordination and review. Shop drawings submitted to the Contracting Officer without evidence of the Contractor's approval may be returned for resubmission. The Contracting Officer will indicate an approval or disapproval of the shop drawings and if not approved as submitted shall indicate the Government's reasons therefor. Any work done before such approval shall be at the Contractor's risk. Approval by the Contracting Officer shall not relieve the Contractor from responsibility for any errors or omissions in such drawings, nor from responsibility for complying with the requirements of this contract, except with respect to variations described and approved in accordance with (f) below.

(f) If shop drawings show variations from the contract requirements, the Contractor shall describe such variations in writing, separate from the drawings, at the time of submission. If the Contracting Officer approves any such variation, the Contracting Officer shall issue an appropriate contract modification, except that, if the variation is minor or does not involve a change in price or in time of performance, a modification need not be issued.

(g) The Contractor shall submit to the Contracting Officer for approval four copies (unless otherwise indicated) of all shop drawings as called for under the various headings of these specifications. Three sets (unless otherwise indicated) of all shop drawings, will be retained by the Contracting Officer and one set will be returned to the Contractor.

52.236-26 PRECONSTRUCTION CONFERENCE (FEB 1995)

If the Contracting Officer decides to conduct a preconstruction conference, the successful offeror will be notified and will be required to attend. The Contracting Officer's notification will include specific details regarding the date, time, and location of the conference, any need for attendance by subcontractors, and information regarding the items to be discussed.

52.242-13 BANKRUPTCY (JUL 1995)

In the event the Contractor enters into proceedings relating to bankruptcy, whether voluntary or involuntary, the Contractor agrees to furnish, by certified mail or electronic commerce method authorized by the contract, written notification of the bankruptcy to the Contracting Officer responsible for administering the contract. This notification shall be furnished within five days of the initiation of the proceedings relating to bankruptcy filing. This notification shall include the date on which the bankruptcy petition was filed, the identity of the court in which the bankruptcy petition was filed, and a listing of Government contract numbers and contracting offices for all Government contracts against which final payment has not been made. This obligation remains in effect until final payment under this contract.

(End of clause)

52.242-14 SUSPENSION OF WORK (APR 1984)

(a) The Contracting Officer may order the Contractor, in writing, to suspend, delay, or interrupt all or any part of the work of this contract for the period of time that the Contracting Officer determines appropriate for the convenience of the Government.

(b) If the performance of all or any part of the work is, for an unreasonable period of time, suspended, delayed, or interrupted (1) by an act of the Contracting Officer in the administration of this contract, or (2) by the Contracting Officer's failure to act within the time specified in this contract (or within a reasonable time if not specified), an adjustment shall be made for any increase in the cost of performance of this contract (excluding profit) necessarily caused by the unreasonable suspension, delay, or interruption, and the contract modified in writing accordingly. However, no adjustment shall be made under this clause for any suspension, delay, or interruption to the extent that performance would have been so suspended, delayed, or interrupted by any other cause, including the fault or negligence of the Contractor, or for which an equitable adjustment is provided for or excluded under any other term or condition of this contract. (c) A claim under this clause shall not be allowed (1) for any costs incurred more than 20 days before the Contractor shall have notified the Contracting Officer in writing of the act or failure to act involved (but this requirement shall not apply as to a claim resulting from a suspension order), and (2) unless the claim, in an amount stated, is asserted in writing as soon as practicable after the termination of the suspension, delay, or interruption, but not later than the date of final payment under the contract.

52.243-4 CHANGES (AUG 1987)

(a) The Contracting Officer may, at any time, without notice to the sureties, if any, by written order designated or indicated to be a change order, make changes in the work within the general scope of the contract, including changes --

- (1) In the specifications (including drawings and designs);
- (2) In the method or manner of performance of the work;
- (3) In the Government-furnished facilities, equipment, materials, services, or site; or
- (4) Directing acceleration in the performance of the work.

(b) Any other written or oral order (which, as used in this paragraph (b), includes direction, instruction, interpretation, or determination) from the Contracting Officer that causes a change shall be treated as a change order under this clause; provided, that the Contractor gives the Contracting Officer written notice stating

- (1) the date, circumstances, and source of the order and
- (2) that the Contractor regards the order as a change order.

(c) Except as provided in this clause, no order, statement, or conduct of the Contracting Officer shall be treated as a change under this clause or entitle the Contractor to an equitable adjustment.

(d) If any change under this clause causes an increase or decrease in the Contractor's cost of, or the time required for, the performance of any part of the work under this contract, whether or not changed by any such order, the Contracting Officer shall make an equitable adjustment and modify the contract in writing. However, except for an adjustment based on defective specifications, no adjustment for any change under paragraph (b) of this clause shall

be made for any costs incurred more than 20 days before the Contractor gives written notice as required. In the case of defective specifications for which the Government is responsible, the equitable adjustment shall include any increased cost reasonably incurred by the Contractor in attempting to comply with the defective specifications.

(e) The Contractor must assert its right to an adjustment under this clause within 30 days after

(1) receipt of a written change order under paragraph (a) of this clause or (2) the furnishing of a written notice under paragraph (b) of this clause, by submitting to the Contracting Officer a written statement describing the general nature and amount of the proposal, unless this period is extended by the Government. The statement of proposal for adjustment may be included in the notice under paragraph (b) above.

(f) No proposal by the Contractor for an equitable adjustment shall be allowed if asserted after final payment under this contract.

52.244-6 SUBCONTRACTS FOR COMMERCIAL ITEMS AND COMMERCIAL COMPONENTS (OCT 1998)

(a) Definitions.

"Commercial item", as used in this clause, has the meaning contained in the clause at 52.202-1, Definitions.

"Subcontract", as used in this clause, includes a transfer of commercial items between divisions, subsidiaries, or affiliates of the Contractor or subcontractor at any tier.

(b) To the maximum extent practicable, the Contractor shall incorporate, and require its subcontractors at all tiers to incorporate, commercial items or nondevelopmental items as components of items to be supplied under this contract.

(c) Notwithstanding any other clause of this contract, the Contractor is not required to include any FAR provision or clause, other than those listed below to the extent they are applicable and as may be required to establish the reasonableness of prices under Part 15, in a subcontract at any tier for commercial items or commercial components:

(1) 52.222-26, Equal Opportunity (E.O. 11246);

(2) 52.222-35, Affirmative Action for Disabled Veterans and Veterans of the Vietnam Era (38 U.S.C. 4212(a));

(3) 52.222-36, Affirmative Action for Workers with Disabilities (29 U.S.C. 793); and

(4) 52.247-64, Preference for Privately-Owned U.S.-Flagged Commercial Vessels (46 U.S.C. 1241)(flow down not required for subcontracts awarded beginning May 1, 1996).

(d) The Contractor shall include the terms of this clause, including this paragraph (d), in subcontracts awarded under this contract.

52.246-12 INSPECTION OF CONSTRUCTION (AUG 1996)

(a) Definition. "Work" includes, but is not limited to, materials, workmanship, and manufacture and fabrication of components.

(b) The Contractor shall maintain an adequate inspection system and perform such inspections as will ensure that the

work performed under the contract conforms to contract requirements. The Contractor shall maintain complete inspection records and make them available to the Government. All work shall be conducted under the general direction of the Contracting Officer and is subject to Government inspection and test at all places and at all reasonable times before acceptance to ensure strict compliance with the terms of the contract.

(c) Government inspections and tests are for the sole benefit of the Government and do not--

(1) Relieve the Contractor of responsibility for providing adequate quality control measures;

(2) Relieve the Contractor of responsibility for damage to or loss of the material before acceptance;

(3) Constitute or imply acceptance; or

(4) Affect the continuing rights of the Government after acceptance of the completed work under paragraph (i) of this section.

(d) The presence or absence of a Government inspector does not relieve the Contractor from any contract requirement, nor is the inspector authorized to change any term or condition of the specification without the Contracting Officer's written authorization.

(e) The Contractor shall promptly furnish, at no increase in contract price, all facilities, labor, and material reasonably needed for performing such safe and convenient inspections and tests as may be required by the Contracting Officer. The Government may charge to the Contractor any additional cost of inspection or test when work is not ready at the time specified by the Contractor for inspection or test, or when prior rejection makes reinspection or retest necessary. The Government shall perform all inspections and tests in a manner that will not unnecessarily delay the work. Special, full size, and performance tests shall be performed as described in the contract.

(f) The Contractor shall, without charge, replace or correct work found by the Government not to conform to contract requirements, unless in the public interest the Government consents to accept the work with an appropriate adjustment in contract price. The Contractor shall promptly segregate and remove rejected material from the premises.

(g) If the Contractor does not promptly replace or correct rejected work, the Government may (1) by contract or otherwise, replace or correct the work and charge the cost to the Contractor or (2) terminate for default the Contractor's right to proceed.

(h) If, before acceptance of the entire work, the Government decides to examine already completed work by removing it or tearing it out, the Contractor, on request, shall promptly furnish all necessary facilities, labor, and material. If the work is found to be defective or nonconforming in any material respect due to the fault of the Contractor or its subcontractors, the Contractor shall defray the expenses of the examination and of satisfactory reconstruction. However, if the work is found to meet contract requirements, the Contracting Officer shall make an equitable adjustment for the additional services involved in the examination and reconstruction, including, if completion of the work was thereby delayed, an extension of time.

(i) Unless otherwise specified in the contract, the Government shall accept, as promptly as practicable after completion and inspection, all work required by the contract or that portion of the work the Contracting Officer determines can be accepted separately. Acceptance shall be final and conclusive except for latent defects, fraud, gross mistakes amounting to fraud, or the Government's rights under any warranty or guarantee.

(a) In addition to any other warranties in this contract, the Contractor warrants, except as provided in paragraph (i) of this clause, that work performed under this contract conforms to the contract requirements and is free of any defect in equipment, material, or design furnished, or workmanship performed by the Contractor or any subcontractor or supplier at any tier.

(b) This warranty shall continue for a period of 1 year from the date of final acceptance of the work. If the Government takes possession of any part of the work before final acceptance, this warranty shall continue for a period of 1 year from the date the Government takes possession.

(c) The Contractor shall remedy at the Contractor's expense any failure to conform, or any defect. In addition, the Contractor shall remedy at the Contractor's expense any damage to Government-owned or controlled real or personal property, when that damage is the result of--

(1) The Contractor's failure to conform to contract requirements; or

(2) Any defect of equipment, material, workmanship, or design furnished.

(d) The Contractor shall restore any work damaged in fulfilling the terms and conditions of this clause. The Contractor's warranty with respect to work repaired or replaced will run for 1 year from the date of repair or replacement.

(e) The Contracting Officer shall notify the Contractor, in writing, within a reasonable time after the discovery of any failure, defect, or damage.

(f) If the Contractor fails to remedy any failure, defect, or damage within a reasonable time after receipt of notice, the Government shall have the right to replace, repair, or otherwise remedy the failure, defect, or damage at the Contractor's expense.

(g) With respect to all warranties, express or implied, from subcontractors, manufacturers, or suppliers for work performed and materials furnished under this contract, the Contractor shall--

(1) Obtain all warranties that would be given in normal commercial practice;

(2) Require all warranties to be executed, in writing, for the benefit of the Government, if directed by the Contracting Officer; and

(3) Enforce all warranties for the benefit of the Government, if directed by the Contracting Officer.

(h) In the event the Contractor's warranty under paragraph (b) of this clause has expired, the Government may bring suit at its expense to enforce a subcontractor's, manufacturer's, or supplier's warranty.

(i) Unless a defect is caused by the negligence of the Contractor or subcontractor or supplier at any tier, the Contractor shall not be liable for the repair of any defects of material or design furnished by the Government nor for the repair of any damage that results from any defect in Government-furnished material or design.

(j) This warranty shall not limit the Government's rights under the Inspection and Acceptance clause of this contract with respect to latent defects, gross mistakes, or fraud.

(End of clause)

(a) The term "f.o.b. destination," as used in this clause, means--

(1) Free of expense to the Government, on board the carrier's conveyance, at a specified delivery point where the consignee's facility (plant, warehouse, store, lot, or other location to which shipment can be made) is located; and

(2) Supplies shall be delivered to the destination consignee's wharf (if destination is a port city and supplies are for export), warehouse unloading platform, or receiving dock, at the expense of the Contractor. The Government shall not be liable for any delivery, storage, demurrage, accessorial, or other charges involved before the actual delivery (or "constructive placement" as defined in carrier tariffs) of the supplies to the destination, unless such charges are caused by an act or order of the Government acting in its contractual capacity. If rail carrier is used, supplies shall be delivered to the specified unloading platform of the consignee. If motor carrier (including "piggyback") is used, supplies shall be delivered to truck tailgate at the unloading platform of the consignee, except when the supplies delivered meet the requirements of Item 568 of the National Motor Freight Classification for "heavy or bulky freight." When supplies meeting the requirements of the referenced Item 568 are delivered, unloading (including movement to the tailgate) shall be performed by the consignee, with assistance from the truck driver, if requested. If the contractor uses rail carrier or freight forwarded for less than carload shipments, the contractor shall ensure that the carrier will furnish tailgate delivery, when required, if transfer to truck is required to complete delivery to consignee.

(b) The Contractor shall--

(1)(i) Pack and mark the shipment to comply with contract specifications; or

(ii) In the absence of specifications, prepare the shipment in conformance with carrier requirements;

(2) Prepare and distribute commercial bills of lading;

(3) Deliver the shipment in good order and condition to the point of delivery specified in the contract;

(4) Be responsible for any loss of and/or damage to the goods occurring before receipt of the shipment by the consignee at the delivery point specified in the contract;

(5) Furnish a delivery schedule and designate the mode of delivering carrier; and

(6) Pay and bear all charges to the specified point of delivery.

52.248-3 VALUE ENGINEERING--CONSTRUCTION (FEB 2000)

(a) General. The Contractor is encouraged to develop, prepare, and submit value engineering change proposals (VECP's) voluntarily. The Contractor shall share in any instant contract savings realized from accepted VECP's, in accordance with paragraph (f) below.

(b) Definitions. "Collateral costs," as used in this clause, means agency costs of operation, maintenance, logistic support, or Government-furnished property.

"Collateral savings," as used in this clause, means those measurable net reductions resulting from a VECP in the agency's overall projected collateral costs, exclusive of acquisition savings, whether or not the acquisition cost changes.

"Contractor's development and implementation costs," as used in this clause, means those costs the Contractor incurs on a VECP specifically in developing, testing, preparing, and submitting the VECP, as well as those costs the Contractor incurs to make the contractual changes required by Government acceptance of a VECP.

"Government costs," as used in this clause, means those agency costs that result directly from developing and implementing the VECP, such as any net increases in the cost of testing, operations, maintenance, and logistic support. The term does not include the normal administrative costs of processing the VECP.

"Instant contract savings," as used in this clause, means the estimated reduction in Contractor cost of performance resulting from acceptance of the VECP, minus allowable Contractor's development and implementation costs, including subcontractors' development and implementation costs (see paragraph (h) below).

"Value engineering change proposal (VECP)" means a proposal that--

(1) Requires a change to this, the instant contract, to implement; and

(2) Results in reducing the contract price or estimated cost without impairing essential functions or characteristics; provided, that it does not involve a change--

(i) In deliverable end item quantities only; or

(ii) To the contract type only.

(c) VECP preparation. As a minimum, the Contractor shall include in each VECP the information described in subparagraphs (1) through (7) below. If the proposed change is affected by contractually required configuration management or similar procedures, the instructions in those procedures relating to format, identification, and priority assignment shall govern VECP preparation. The VECP shall include the following:

(1) A description of the difference between the existing contract requirement and that proposed, the comparative advantages and disadvantages of each, a justification when an item's function or characteristics are being altered, and the effect of the change on the end item's performance.

(2) A list and analysis of the contract requirements that must be changed if the VECP is accepted, including any suggested specification revisions.

(3) A separate, detailed cost estimate for

(i) the affected portions of the existing contract requirement and

(ii) the VECP. The cost reduction associated with the VECP shall take into account the Contractor's allowable development and implementation costs, including any amount attributable to subcontracts under paragraph (h) below.

(4) A description and estimate of costs the Government may incur in implementing the VECP, such as test and evaluation and operating and support costs.

(5) A prediction of any effects the proposed change would have on collateral costs to the agency.

(6) A statement of the time by which a contract modification accepting the VECP must be issued in order to achieve the maximum cost reduction, noting any effect on the contract completion time or delivery schedule.

(7) Identification of any previous submissions of the VECP, including the dates submitted, the agencies and contract numbers involved, and previous Government actions, if known.

(d) Submission. The Contractor shall submit VECP's to the Resident Engineer at the worksite, with a copy to the Contracting Officer.

(e) Government action.

(1) The Contracting Officer will notify the Contractor of the status of the VECP within 45 calendar days after the contracting office receives it. If additional time is required, the Contracting Officer will notify the Contractor within the 45-day period and provide the reason for the delay and the expected date of the decision. The Government will process VECP's expeditiously; however, it shall not be liable for any delay in acting upon a VECP.

If the VECP is not accepted, the Contracting Officer will notify the Contractor in writing, explaining the reasons for rejection. The Contractor may withdraw any VECP, in whole or in part, at any time before it is accepted by the Government. The Contracting Officer may require that the Contractor provide written notification before undertaking significant expenditures for VECP effort.

Any VECP may be accepted, in whole or in part, by the Contracting Officer's award of a modification to this contract citing this clause. The Contracting Officer may accept the VECP, even though an agreement on price reduction has not been reached, by issuing the Contractor a notice to proceed with the change. Until a notice to proceed is issued or a contract modification applies a VECP to this contract, the Contractor shall perform in accordance with the existing contract. The decision to accept or reject all or part of any VECP is a unilateral decision made solely at the discretion of the Contracting Officer.

(f) Sharing.

(1) Rates. The Government's share of savings is determined by subtracting Government costs from instant contract savings and multiplying the result by

(i) 45 percent for fixed-price contracts or

(ii) 75 percent for cost-reimbursement contracts.

(2) Payment. Payment of any share due the Contractor for use of a VECP on this contract shall be authorized by a modification to this contract to--

(i) Accept the VECP;

(ii) Reduce the contract price or estimated cost by the amount of instant contract savings; and

(iii) Provide the Contractor's share of savings by adding the amount calculated to the contract price or fee.

(g) Collateral savings. If a VECP is accepted, the Contracting Officer will increase the instant contract amount by 20 percent of any projected collateral savings determined to be realized in a typical year of use after subtracting any Government costs not previously offset. However, the Contractor's share of collateral savings will not exceed the contract's firm-fixed-price or estimated cost, at the time the VECP is accepted, or \$100,000, whichever is greater. The Contracting Officer is the sole determiner of the amount of collateral savings.

(h) Subcontracts. The Contractor shall include an appropriate value engineering clause in any subcontract of \$50,000 or more and may include one in subcontracts of lesser value. In computing any adjustment in this contract's price under paragraph (f) above, the Contractor's allowable development and implementation costs shall include any subcontractor's allowable development and implementation costs clearly resulting from a VECP accepted by the Government under this contract, but shall exclude any value engineering incentive payments to a subcontractor. The Contractor may choose any arrangement for subcontractor value engineering incentive payments; provided, that these payments shall not reduce the Government's share of the savings resulting from the VECP.

(i) Data. The Contractor may restrict the Government's right to use any part of a VECP or the supporting data by marking the following legend on the affected parts:

"These data, furnished under the Value Engineering-- Construction clause of contract , shall not be disclosed outside the Government or duplicated, used, or disclosed, in whole or in part, for any purpose other than to evaluate a value engineering change proposal submitted under the clause. This restriction does not limit the Government's right to use information contained in these data if it has been obtained or is otherwise available from the Contractor or from another source without limitations." If a VECP is accepted, the Contractor hereby grants the Government unlimited rights in the VECP and supporting data, except that, with respect to data qualifying and submitted as limited rights technical data, the Government shall have the rights specified in the contract modification implementing the VECP and shall appropriately mark the data. (The terms "unlimited rights" and "limited rights" are defined in Part 27 of the Federal Acquisition Regulation.)

(End of clause)

**52.249-2 TERMINATION FOR CONVENIENCE OF THE GOVERNMENT (FIXED-PRICE) (SEP 1996) -
ALTERNATE I (SEP 1996)**

(a) The Government may terminate performance of work under this contract in whole or, from time to time, in part if the Contracting Officer determines that a termination is in the Government's interest. The Contracting Officer shall terminate by delivering to the Contractor a Notice of Termination specifying the extent of termination and the effective date.

(b) After receipt of a Notice of Termination, and except as directed by the Contracting Officer, the Contractor shall immediately proceed with the following obligations, regardless of any delay in determining or adjusting any amounts due under this clause:

(1) Stop work as specified in the notice.

(2) Place no further subcontracts or orders (referred to as subcontracts in this clause) for materials, services, or facilities, except as necessary to complete the continued portion of the contract.

(3) Terminate all subcontracts to the extent they relate to the work terminated.

(4) Assign to the Government, as directed by the Contracting Officer, all right, title, and interest of the Contractor under the subcontracts terminated, in which case the Government shall have the right to settle or to pay any termination settlement proposal arising out of those terminations.

(5) With approval or ratification to the extent required by the Contracting Officer, settle all outstanding liabilities and termination settlement proposals arising from the termination of subcontracts; the approval or ratification will be final for purposes of this clause.

(6) As directed by the Contracting Officer, transfer title and deliver to the Government (i) the fabricated or unfabricated parts, work in process, completed work, supplies, and other material produced or acquired for the work terminated, and (ii) the completed or partially completed plans, drawings, information, and other property that, if the contract had been completed, would be required to be furnished to the Government.

(7) Complete performance of the work not terminated.

(8) Take any action that may be necessary, or that the Contracting Officer may direct, for the protection and preservation of the property related to this contract that is in the possession of the Contractor and in which the Government has or may acquire an interest.

(9) Use its best efforts to sell, as directed or authorized by the Contracting Officer, any property of the types referred to in subparagraph (b)(6) of this clause; provided, however, that the Contractor (i) is not required to extend credit to any purchaser and (ii) may acquire the property under the conditions prescribed by, and at prices approved by, the Contracting Officer. The proceeds of any transfer or disposition will be applied to reduce any payments to be made by the Government under this contract, credited to the price or cost of the work, or paid in any other manner directed by the Contracting Officer.

(c) The Contractor shall submit complete termination inventory schedules no later than 120 days from the effective date of termination, unless extended in writing by the Contracting Officer upon written request of the Contractor within this 120-day period.

(d) After expiration of the plant clearance period as defined in Subpart 45.6 of the Federal Acquisition Regulation, the Contractor may submit to the Contracting Officer a list, certified as to quantity and quality, of termination inventory not previously disposed of, excluding items authorized for disposition by the Contracting Officer. The Contractor may request the Government to remove those items or enter into an agreement for their storage. Within 15 days, the Government will accept title to those items and remove them or enter into a storage agreement. The Contracting Officer may verify the list upon removal of the items, or if stored, within 45 days from submission of the list, and shall correct the list, as necessary, before final settlement.

(e) After termination, the Contractor shall submit a final termination settlement proposal to the Contracting Officer in the form and with the certification prescribed by the Contracting Officer. The Contractor shall submit the proposal promptly, but no later than 1 year from the effective date of termination, unless extended in writing by the Contracting Officer upon written request of the Contractor within this 1-year period. However, if the Contracting Officer determines that the facts justify it, a termination settlement proposal may be received and acted on after 1 year or any extension. If the Contractor fails to submit the proposal within the time allowed, the Contracting Officer may determine, on the basis of information available, the amount, if any, due the Contractor because of the termination and shall pay the amount determined.

(f) Subject to paragraph (e) of this clause, the Contractor and the Contracting Officer may agree upon the whole or any part of the amount to be paid or remaining to be paid because of the termination. The amount may include a reasonable allowance for profit on work done. However, the agreed amount, whether under this paragraph (g) or paragraph (g) of this clause, exclusive of costs shown in subparagraph (g)(3) of this clause, may not exceed the total contract price as reduced by (1) the amount of payments previously made and (2) the contract price of work not terminated. The contract shall be modified, and the Contractor paid the agreed amount. Paragraph (g) of this clause shall not limit, restrict, or affect the amount that may be agreed upon to be paid under this paragraph.

(g) If the Contractor and Contracting Officer fail to agree on the whole amount to be paid the Contractor because of the termination of work, the Contracting Officer shall pay the Contractor the amounts determined as follows, but without duplication of any amounts agreed upon under paragraph (f) of this clause:

(1) For contract work performed before the effective date of termination, the total (without duplication of any items) of--

(i) The cost of this work;

(ii) The cost of settling and paying termination settlement proposals under terminated subcontracts that are properly chargeable to the terminated portion of the contract if not included in subdivision (g)(1)(i) of this clause; and

(iii) A sum, as profit on subdivision (g)(1)(i) of this clause, determined by the Contracting Officer under 49.202 of the Federal Acquisition Regulation, in effect on the date of this contract, to be fair and reasonable; however, if it appears that the Contractor would have sustained a loss on the entire contract had it been completed, the Contracting

Officer shall allow no profit under this subdivision (iii) and shall reduce the settlement to reflect the indicated rate of loss.

(2) The reasonable costs of settlement of the work terminated, including--

(i) Accounting, legal, clerical, and other expenses reasonably necessary for the preparation of termination settlement proposals and supporting data;

(ii) The termination and settlement of subcontracts (excluding the amounts of such settlements); and

(iii) Storage, transportation, and other costs incurred, reasonably necessary for the preservation, protection, or disposition of the termination inventory.

(h) Except for normal spoilage, and except to the extent that the Government expressly assumed the risk of loss, the Contracting Officer shall exclude from the amounts payable to the Contractor under paragraph (g) of this clause, the fair value, as determined by the Contracting Officer, of property that is destroyed, lost, stolen, or damaged so as to become undeliverable to the Government or to a buyer.

(i) The cost principles and procedures of Part 31 of the Federal Acquisition Regulation, in effect on the date of this contract, shall govern all costs claimed, agreed to, or determined under this clause.

(j) The Contractor shall have the right of appeal, under the Disputes clause, from any determination made by the Contracting Officer under paragraph (e), (g), or (l) of this clause, except that if the Contractor failed to submit the termination settlement proposal or request for equitable adjustment within the time provided in paragraph (e) or (l), respectively, and failed to request a time extension, there is no right of appeal.

(k) In arriving at the amount due the Contractor under this clause, there shall be deducted--

(1) All unliquidated advance or other payments to the Contractor under the terminated portion of this contract;

(2) Any claim which the Government has against the Contractor under this contract; and

(3) The agreed price for, or the proceeds of sale of, materials, supplies, or other things acquired by the Contractor or sold under the provisions of this clause and not recovered by or credited to the Government.

(l) If the termination is partial, the Contractor may file a proposal with the Contracting Officer for an equitable adjustment of the price(s) of the continued portion of the contract. The Contracting Officer shall make any equitable adjustment agreed upon. Any proposal by the Contractor for an equitable adjustment under this clause shall be requested within 90 days from the effective date of termination unless extended in writing by the Contracting Officer.

(m)(1) The Government may, under the terms and conditions it prescribes, make partial payments and payments against costs incurred by the Contractor for the terminated portion of the contract, if the Contracting Officer believes the total of these payments will not exceed the amount to which the Contractor will be entitled.

(2) If the total payments exceed the amount finally determined to be due, the Contractor shall repay the excess to the Government upon demand, together with interest computed at the rate established by the Secretary of the Treasury under 50 U.S.C. App. 1215(b)(2). Interest shall be computed for the period from the date the excess payment is received by the Contractor to the date the excess is repaid. Interest shall not be charged on any excess payment due to a reduction in the Contractor's termination settlement proposal because of retention or other disposition of termination inventory until 10 days after the date of the retention or disposition, or a later date determined by the Contracting Officer because of the circumstances.

(n) Unless otherwise provided in this contract or by statute, the Contractor shall maintain all records and documents relating to the terminated portion of this contract for 3 years after final settlement. This includes all books and other

evidence bearing on the Contractor's costs and expenses under this contract. The Contractor shall make these records and documents available to the Government, at the Contractor's office, at all reasonable times, without any direct charge. If approved by the Contracting Officer, photographs, microphotographs, or other authentic reproductions may be maintained instead of original records and documents.

52.249-10 DEFAULT (FIXED-PRICE CONSTRUCTION) (APR 1984)

(a) If the Contractor refuses or fails to prosecute the work or any separable part, with the diligence that will insure its completion within the time specified in this contract including any extension, or fails to complete the work within this time, the Government may, by written notice to the Contractor, terminate the right to proceed with the work (or the separable part of the work) that has been delayed. In this event, the Government may take over the work and complete it by contract or otherwise, and may take possession of and use any materials, appliances, and plant on the work site necessary for completing the work. The Contractor and its sureties shall be liable for any damage to the Government resulting from the Contractor's refusal or failure to complete the work within the specified time, whether or not the Contractor's right to proceed with the work is terminated. This liability includes any increased costs incurred by the Government in completing the work.

(b) The Contractor's right to proceed shall not be terminated nor the Contractor charged with damages under this clause, if--

(1) The delay in completing the work arises from unforeseeable causes beyond the control and without the fault or negligence of the Contractor. Examples of such causes include

(i) acts of God or of the public enemy,

(ii) acts of the Government in either its sovereign or contractual capacity,

(iii) acts of another Contractor in the performance of a contract with the Government,

(iv) fires,

(v) floods,

(vi) epidemics,

(vii) quarantine restrictions,

(viii) strikes,

(ix) freight embargoes,

(x) unusually severe weather, or delays of subcontractors or suppliers at any tier arising from unforeseeable causes beyond the control and without the fault or negligence of both the Contractor and the subcontractors or suppliers; and

(2) The Contractor, within 10 days from the beginning of any delay (unless extended by the Contracting Officer), notifies the Contracting Officer in writing of the causes of delay. The Contracting Officer shall ascertain the facts and the extent of delay. If, in the judgment of the Contracting Officer, the findings of fact warrant such action, the time for completing the work shall be extended. The findings of the Contracting Officer shall be final and conclusive on the parties, but subject to appeal under the Disputes clause.

(c) If, after termination of the Contractor's right to proceed, it is determined that the Contractor was not in default, or that the delay was excusable, the rights and obligations of the parties will be the same as if the termination had been issued for the convenience of the Government.

The rights and remedies of the Government in this clause are in addition to any other rights and remedies provided by law or under this contract.

52.250-4001 INDEMNIFICATION (MAY 2000)

(a) Notwithstanding any other provision of this contract:

the contractor shall indemnify and hold the Government harmless from any and all damage to persons or property that results from the contractor's work under this contract.

the contractor shall be responsible for any and all damage to the property furnished by the Government for the performance of this contract unless the sole and exclusive cause of the damage is the fault or negligence of the Government.

the contractor shall be responsible for damage to any Government plant, facilities or real estate that results from the performance of the work under this contract.

the contractor shall reimburse the Government for the cost of repairing or replacing any Government property damaged by the contractor as a result of the performance of the work under this contract. The Government may, in its sole discretion, allow the contractor to repair or replace any damaged Government property in lieu of reimbursing the Government.

the contractor shall be responsible for any environmental damage that results from the performance of the work under this contract.

(b) For purposes of this clause, the term "contractor" includes, without limitation, the officers, agents, and employees of the contractor and all materialmen, suppliers, consultants, and subcontractors (at any tier).

52.253-1 COMPUTER GENERATED FORMS (JAN 1991)

(a) Any data required to be submitted on a Standard or Optional Form prescribed by the Federal Acquisition Regulation (FAR) may be submitted on a computer generated version of the form, provided there is no change to the name, content, or sequence of the data elements on the form, and provided the form carries the Standard or Optional Form number and edition date.

(b) Unless prohibited by agency regulations, any data required to be submitted on an agency unique form prescribed by an agency supplement to the FAR may be submitted on a computer generated version of the form provided there is no change to the name, content, or sequence of the data elements on the form and provided the form carries the agency form number and edition date.

(c) If the Contractor submits a computer generated version of a form that is different than the required form, then the rights and obligations of the parties will be determined based on the content of the required form.

252.201-7000 CONTRACTING OFFICER'S REPRESENTATIVE (DEC 1991)

(a) "Definition. Contracting officer's representative" means an individual designated in accordance with subsection 201.602-2 of the Defense Federal Acquisition Regulation Supplement and authorized in writing by the contracting officer to perform specific technical or administrative functions.

(b) If the Contracting Officer designates a contracting officer's representative (COR), the Contractor will receive a copy of the written designation. It will specify the extent of the COR's authority to act on behalf of the contracting officer. The COR is not authorized to make any commitments or changes that will affect price, quality, quantity, delivery, or any other term or condition of the contract.

(End of clause)

252.203-7001 PROHIBITION ON PERSONS CONVICTED OF FRAUD OR OTHER DEFENSE - CONTRACT-RELATED FELONIES (MAR 1999)

(a) Definitions. As used in this clause—

(1) "Arising out of a contract with the DoD" means any act in connection with—

(i) Attempting to obtain;

(ii) Obtaining, or

(iii) Performing a contract or first-tier subcontract of any agency, department, or component of the Department of Defense (DoD).

(2) "Conviction of fraud or any other felony" means any conviction for fraud or a felony in violation of state or Federal criminal statutes, whether entered on a verdict or plea, including a plea of *nolo contendere*, for which sentence has been imposed.

(3) "Date of conviction" means the date judgment was entered against the individual.

(b) Any individual who is convicted after September 29, 1988, of fraud or any other felony arising out of a contract with the DoD is prohibited from serving--

(1) In a management or supervisory capacity on any DoD contract or first-tier subcontract;

(2) On the board of directors of any DoD contractor or first-tier subcontractor;

(3) As a consultant, agent, or representative for any DoD contractor or first-tier subcontractor; or

(4) In any other capacity with the authority to influence, advise, or control the decisions of any DoD contractor or subcontractor with regard to any DoD contract or first-tier subcontract.

(c) Unless waived, the prohibition in paragraph (b) of this clause applies for not less than 5 years from the date of conviction.

(d) 10 U.S.C. 2408 provides that a defense contractor or first-tier subcontractor shall be subject to a criminal penalty of not more than \$500,000 if convicted of knowingly—

- (1) Employing a person under a prohibition specified in paragraph (b) of this clause; or
- (2) Allowing such a person to serve on the board of directors of the contractor or first-tier subcontractor.

(e) In addition to the criminal penalties contained in 10 U.S.C. 2408, the Government may consider other available remedies, such as—

- (1) Suspension or debarment;
- (2) Cancellation of the contract at no cost to the Government; or
- (3) Termination of the contract for default.

(f) The Contractor may submit written requests for waiver of the prohibition in paragraph (b) of this clause to the Contracting Officer. Requests shall clearly identify—

- (1) The person involved;
- (2) The nature of the conviction and resultant sentence or punishment imposed;
- (3) The reasons for the requested waiver; and
- (4) An explanation of why a waiver is in the interest of national security.

(g) The Contractor agrees to include the substance of this clause, appropriately modified to reflect the identity and relationship of the parties, in all first-tier subcontracts exceeding the simplified acquisition threshold in Part 2 of the Federal Acquisition Regulation, except those for commercial items or components.

(h) Pursuant to 10 U.S.C. 2408(c), defense contractors and subcontractors may obtain information as to whether a particular person has been convicted of fraud or any other felony arising out of a contract with the DoD by contacting The Office of Justice Programs, The Denial of Federal Benefits Office, U.S. Department of Justice, telephone (202) 616-3507.

(End of clause)

252.203-7002 DISPLAY OF DOD HOTLINE POSTER (DEC 1991)

(a) The Contractor shall display prominently in common work areas within business segments performing work under Department of Defense (DoD) contracts, DoD Hotline Posters prepared by the DoD Office of the Inspector General.

(b) DoD Hotline Posters may be obtained from the DoD Inspector General, ATTN: Defense Hotline, 400 Army Navy Drive, Washington, DC 22202-2884.

(c) The Contractor need not comply with paragraph (a) of this clause if it has established a mechanism, such as a hotline, by which employees may report suspected instances of improper conduct, and instructions that encourage employees to make such reports.

(End of clause)

252.204-7003 CONTROL OF GOVERNMENT PERSONNEL WORK PRODUCT (APR 1992)

The Contractor's procedures for protecting against unauthorized disclosure of information shall not require Department of Defense employees or members of the Armed Forces to relinquish control of their work products, whether classified or not, to the contractor.

(End of clause)

252.204-7004 REQUIRED CENTRAL CONTRACTOR REGISTRATION.(MAR 2000)

(a) Definitions.

As used in this clause--

(1) Central Contractor Registration (CCR) database means the primary DoD repository for contractor information required for the conduct of business with DoD.

(2) Data Universal Numbering System (DUNS) number means the 9-digit number assigned by Dun and Bradstreet Information Services to identify unique business entities.

(3) Data Universal Numbering System +4 (DUNS+4) number means the DUNS number assigned by Dun and Bradstreet plus a 4-digit suffix that may be assigned by a parent (controlling) business concern. This 4-digit suffix may be assigned at the discretion of the parent business concern for such purposes as identifying subunits or affiliates of the parent business concern.

(4) Registered in the CCR database means that all mandatory information, including the DUNS number or the DUNS+4 number, if applicable, and the corresponding Commercial and Government Entity (CAGE) code, is in the CCR database; the DUNS number and the CAGE code have been validated; and all edits have been successfully completed.

(b)(1) By submission of an offer, the offeror acknowledges the requirement that a prospective awardee must be registered in the CCR database prior to award, during performance, and through final payment of any contract resulting from this solicitation, except for awards to foreign vendors for work to be performed outside the United States.

(2) The offeror shall provide its DUNS or, if applicable, its DUNS+4 number with its offer, which will be used by the Contracting Officer to verify that the offeror is registered in the CCR database.

(3) Lack of registration in the CCR database will make an offeror ineligible for award.

(4) DoD has established a goal of registering an applicant in the CCR database within 48 hours after receipt of a complete and accurate application via the Internet. However, registration of an applicant submitting an application through a method other than the Internet may take up to 30 days. Therefore, offerors that are not registered should consider applying for registration immediately upon receipt of this solicitation.

(c) The Contractor is responsible for the accuracy and completeness of the data within the CCR, and for any liability resulting from the Government's reliance on inaccurate or incomplete data. To remain registered in the CCR

database after the initial registration, the Contractor is required to confirm on an annual basis that its information in the CCR database is accurate and complete.

(d) Offerors and contractors may obtain information on registration and annual confirmation requirements by calling 1-888-227-2423, or via the Internet at <http://www.ccr2000.com>.

(End of clause)

252.205-7000 PROVISION OF INFORMATION TO COOPERATIVE AGREEMENT HOLDERS (DEC 1991)

(a) Definition.

"Cooperative agreement holder" means a State or local government; a private, nonprofit organization; a tribal organization (as defined in section 4(c) of the Indian Self-Determination and Education Assistance Act (Pub. L. 93-268; 25 U.S.C. 450 (c))); or an economic enterprise (as defined in section 3(e) of the Indian Financing Act of 1974 (Pub. L. 93-362; 25 U.S.C. 1452(e))) whether such economic enterprise is organized for profit or nonprofit purposes; which has an agreement with the Defense Logistics Agency to furnish procurement technical assistance to business entities.

(b) The Contractor shall provide cooperative agreement holders, upon their request, with a list of those appropriate employees or offices responsible for entering into subcontracts under defense contracts. The list shall include the business address, telephone number, and area of responsibility of each employee or office.

(c) The Contractor need not provide the listing to a particular cooperative agreement holder more frequently than once a year.

(End of clause)

252.209-7000 ACQUISITION FROM SUBCONTRACTORS SUBJECT TO ONSITE INSPECTION UNDER THE INTERMEDIATE-RANGE NUCLEAR FORCES (INF) TREATY (NOV 1995)

(a) The Contractor shall not deny consideration for a subcontract award under this contract to a potential subcontractor subject to on-site inspection under the INF Treaty, or a similar treaty, solely or in part because of the actual or potential presence of Soviet inspectors at the subcontractor's facility, unless the decision is approved by the Contracting Officer.

(b) The Contractor shall incorporate this clause, including this paragraph (b), in all solicitations and contracts exceeding the simplified acquisition threshold in part 13 of the Federal Acquisition Regulation, except those for commercial items.

252.209-7003 COMPLIANCE WITH VETERANS' EMPLOYMENT REPORTING REQUIREMENTS (MAR 1998)

By submission of its offer, the offeror represents that, if it is subject to the reporting requirements of 37 U.S.C. 4212(d) (i.e., the VETS-100 report required by Federal Acquisition Regulation clause 52.222-37, Employment Reports on Disabled Veterans and Veterans of the Vietnam Era), it has submitted the most recent report required by 38 U.S.C. 4212(d).

252.209-7004 SUBCONTRACTING WITH FIRMS THAT ARE OWNED OR CONTROLLED BY THE GOVERNMENT OF A TERRORIST COUNTRY (MAR 1998)

(a) Unless the Government determines that there is a compelling reason to do so, the Contractor shall not enter into any subcontract in excess of \$25,000 with a firm, or subsidiary of a firm, that is identified, on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs, as being ineligible for the award of Defense contracts or subcontracts because it is owned or controlled by the government of a terrorist country.

(b) A corporate officer or a designee of the Contractor shall notify the Contracting Officer, in writing, before entering into a subcontract with a party that is identified, on the List of Parties Excluded from Federal Procurement and Nonprocurement Programs, as being ineligible for the award of Defense contracts or subcontracts because it is owned or controlled by the government of a terrorist country. The notice must include the name of the proposed subcontractor notwithstanding its inclusion on the List of Parties Excluded From Federal Procurement and Nonprocurement Programs.

252.219-7003 SMALL, SMALL DISADVANTAGED AND WOMEN-OWNED SMALL BUSINESS SUBCONTRACTING PLAN (DOD CONTRACTS) (APR. 1996)

This clause supplements the Federal Acquisition Regulation 52.219-9, Small, Small Disadvantaged and Women-Owned Small Business Subcontracting Plan, clause of this contract.

(a) *Definitions. Historically black colleges and universities*, as used in this clause, means institutions determined by the Secretary of Education to meet the requirements of 34 CFR 608.2. The term also means any nonprofit research institution that was an integral part of such a college or university before November 14, 1986.

Minority institutions, as used in this clause, means institutions meeting the requirements of section 1046(3) of the Higher Education Act of 1965 (20 U.S.C. 1135d-5(3)). The term also includes Hispanic-serving institutions as defined in section 316(b)(1) of such Act (20 U.S.C. 1059c(b)(1)).

(b) Except for company or division-wide commercial items subcontracting plans, the term *small disadvantaged business*, when used in the FAR 52.219-9 clause, includes historically black colleges and universities and minority institutions, in addition to small disadvantaged business concerns.

(c) Work under the contract or its subcontracts shall be credited toward meeting the small disadvantaged business concern goal required by paragraph (d) of the FAR 52.219-9 clause when:

(1) It is performed on Indian lands or in joint venture with an Indian tribe or a tribally-owned corporation, and

(2) It meets the requirements of 10 U.S.C. 2323a.

(d) Subcontracts awarded to workshops approved by the Committee for Purchase from People Who are Blind or Severely Disabled (41 U.S.C. 46-48), may be counted toward the Contractor's small business subcontracting goal.

(e) A mentor firm, under the Pilot Mentor-Protege Program established under Section 831 of Pub. L. 101-510, as amended, may count toward its small disadvantaged business goal, subcontracts awarded--

(f) The master plan approval referred to in paragraph (f) of the FAR 52.219-9 clause is approval by the Contractor's cognizant contract administration activity.

(g) In those subcontracting plans which specifically identify small, small disadvantaged, and women-owned small businesses, the Contractor shall notify the Administrative Contracting Officer of any substitutions of firms that are not small, small disadvantaged, or women-owned small businesses for the firms listed in the subcontracting plan. Notifications shall be in writing and shall occur within a reasonable period of time after award of the subcontract. Contractor-specified formats shall be acceptable.

(End of clause)

252.223-7006 PROHIBITION ON STORAGE AND DISPOSAL OF TOXIC AND HAZARDOUS MATERIALS (APR 1993)

(a) "Definitions".

As used in this clause --

(1) "Storage" means a non-transitory, semi-permanent or permanent holding, placement, or leaving of material. It does not include a temporary accumulation of a limited quantity of a material used in or a waste generated or resulting from authorized activities, such as servicing, maintenance, or repair of Department of Defense (DoD) items, equipment, or facilities.

(2) "Toxic or hazardous materials" means:

(i) Materials referred to in section 101(14) of the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 (42 U.S.C. 9601(14)) and materials designated under section 102 of CERCLA (42 U.S.C. 9602) (40 CFR part 302);

(ii) Materials that are of an explosive, flammable, or pyrotechnic nature; or

(iii) Materials otherwise identified by the Secretary of Defense as specified in DoD regulations.

(b) In accordance with 10 U.S.C. 2692, the Contractor is prohibited from storing or disposing of non-DoD-owned toxic or hazardous materials on a DoD installation, except to the extent authorized by a statutory exception to 10 U.S.C. 2692 or as authorized by the Secretary of Defense or his designee.

(End of clause)

252.225-7012 PREFERENCE FOR CERTAIN DOMESTIC COMMODITIES (AUG 2000)

(a) The Contractor agrees to deliver under this contract only such of the following articles that have been grown, reprocessed, reused, or produced in the United States, its possessions, or Puerto Rico --

- (1) Food;
- (2) Clothing;
- (3) Tents, tarpaulins, or covers;
- (4) Cotton and other natural fiber products;
- (5) Woven silk or woven silk blends;
- (6) Spun silk yarn for cartridge cloth;
- (7) Synthetic fabric, and coated synthetic fabric, including all textile fibers and yarns that are for use in such fabrics;
- (8) Canvas products;
- (9) Wool (whether in the form of fiber or yarn or contained in fabrics, materials, or manufactured articles); or
- (10) Any item of individual equipment (Federal supply Classification 8465) manufactured from or containing such fibers, yarns, fabrics, or materials.

(b) This clause does not apply --

- (1) To supplies listed in FAR section 25.104(a), or other supplies for which the Government has determined that a satisfactory quality and sufficient quantity cannot be acquired as and when needed at U.S. market prices;
- (2) To foods which have been manufactured or processed in the United States, its possessions, or Puerto Rico;
- (3) To chemical warfare protective clothing produced in the countries listed in subsection 225.872-1 of the Defense FAR Supplement; or
- (4) To fibers and yarns that are for use in synthetic fabric or coated synthetic fabric (but does apply to the synthetic or coated synthetic fabric itself), if--
 - (i) The fabric is to be used as a component of an end item that is not a textile product. Examples of textile products, made in whole or in part of fabric, include--
 - (a) Draperies, floor coverings, furnishings, and bedding (Federal Supply Group 72, Household and Commercial Furnishings and Appliances);
 - (B) Items made in whole or in part of fabric in Federal Supply Group 83, Textile/leather/furs/apparel/findings/tents/flags, or Federal Supply Group 84, Clothing, Individual Equipment and Insignia;
 - (C) Upholstered seats (whether for household, office, or other use); and
 - (D) Parachutes (Federal Supply Class 1670); or
 - (ii) The fibers and yarns are para-aramid fibers and yarns manufactured in the Netherlands.

(End of clause)

252.225-7031 SECONDARY ARAB BOYCOTT OF ISRAEL (JUN 1992)

(a) Definitions. As used in this clause--

(1) "Foreign person" means any person other than a United States person as defined in Section 16(2) of the Export Administration Act of 1979 (50 U.S.C. App. Sec 2415).

(2) "United States person" is defined in Section 16(2) of the Export Administration Act of 1979 and means any United States resident or national (other than an individual resident outside the United States and employed by other than a United States person), any domestic concern (including any permanent domestic establishment of any foreign concern), and any foreign subsidiary or affiliate (including any permanent foreign establishment) of any domestic concern which is controlled in fact by such domestic concerns, as determined under regulations of the President.

(b) Certification. By submitting this offer, the Offeror, if a foreign person, company or entity, certifies that it--

(1) Does not comply with the Secondary Arab Boycott of Israel; and

(2) Is not taking or knowingly agreeing to take any action, with respect to the Secondary Boycott of Israel by Arab countries, which 50 U.S.C. App. Sec 2407(a) prohibits a United States person from taking.

(End of clause)

252.227-7015 TECHNICAL DATA--COMMERCIAL ITEMS. (NOV 1995)

(a) Definitions. As used in this clause:

(1) "Commercial item" does not include commercial computer software.

(2) "Form, fit, and function data" means technical data that describes the required overall physical, functional, and performance characteristics (along with the qualification requirements, if applicable) of an item, component, or process to the extent necessary to permit identification of physically and functionally interchangeable items.

(3) The term "item" includes components or processes.

(4) "Technical data" means recorded information, regardless of the form or method of recording, of a scientific or technical nature (including computer software documentation). The term does not include computer software or data incidental to contract administration, such as financial and/or management information.

(b) License. (1) The Government shall have the unrestricted right to use, modify, reproduce, release, perform, display, or disclose technical data, and to permit others to do so, that--

(i) Have been provided to the Government or others without restrictions on use, modification, reproduction, release, or further disclosure other than a release or disclosure resulting from the sale, transfer, or other assignment of interest in the technical data to another party or the sale or transfer of some or all of a business entity or its assets to another party;

(ii) Are form, fit, and function data;

(iii) Are a correction or change to technical data furnished to the Contractor by the Government;

(iv) Are necessary for operation, maintenance, installation, or training (other than detailed manufacturing or process data); or

(v) Have been provided to the Government under a prior contract or licensing agreement through which the Government has acquired the rights to use, modify, reproduce, release, perform, display, or disclose the data without restrictions.

(2) Except as provided in paragraph (b)(1) of this clause, the Government may use, modify, reproduce, release, perform, display, or disclose technical data within the Government only. The Government shall not--

(i) Use the technical data to manufacture additional quantities of the commercial items; or

(ii) Release, perform, display, disclose, or authorize use of the technical data outside the Government without the Contractor's written permission unless a release, disclosure or permitted use is necessary for emergency repair or overhaul of the commercial items furnished under this contract.

(c) Additional license rights. The Contractor, its subcontractors, and suppliers are not required to provide the Government additional rights to use, modify, reproduce, release, perform, display, or disclose technical data. However, if the Government desires to obtain additional rights in technical data, the Contractor agrees to promptly enter into negotiations with the Contracting Officer to determine whether there are acceptable terms for transferring such rights. All technical data in which the Contractor has granted the Government additional rights shall be listed or described in a special license agreement made part of this contract. The license shall enumerate the additional rights granted the Government in such data.

(d) Release from liability. The Contractor agrees that the Government, and other persons to whom the Government may have released or disclosed technical data delivered or otherwise furnished under this contract, shall have no liability for any release or disclosure of technical data that are not marked to indicate that such data are licensed data subject to use, modification, reproduction, release, performance, display, or disclosure restrictions.

252.227-7027 DEFERRED ORDERING OF TECHNICAL DATA OR COMPUTER SOFTWARE

(APR 1988)

In addition to technical data or computer software specified elsewhere in this contract to be delivered hereunder, the Government may, at any time during the performance of this contract or within a period of three (3) years after acceptance of all items (other than technical data or computer software) to be delivered under this contract or the termination of this contract, order any technical data or computer software generated in the performance of this contract or any subcontract hereunder. When the technical data or computer software is ordered, the Contractor shall be compensated for converting the data or computer software into the prescribed form, for reproduction and delivery. The obligation to deliver the technical data of a subcontractor and pertaining to an item obtained from him shall expire three (3) years after the date the Contractor accepts the last delivery of that item from that subcontractor under this contract. The Government's rights to use said data or computer software shall be pursuant to the "Rights in Technical Data and Computer Software" clause of this contract.

(End of clause)

252.227-7033 RIGHTS IN SHOP DRAWINGS (APR 1966)

(a) Shop drawings for construction means drawings, submitted to the Government by the Construction Contractor, subcontractor or any lower-tier subcontractor pursuant to a construction contract, showing in detail (i) the proposed

fabrication and assembly of structural elements and (ii) the installation (i.e., form, fit, and attachment details) of materials or equipment. The Government may duplicate, use, and disclose in any manner and for any purpose shop drawings delivered under this contract.

(b) This clause, including this paragraph (b), shall be included in all subcontracts hereunder at any tier.

252.227-7037 VALIDATION OF RESTRICTIVE MARKINGS ON TECHNICAL DATA. (SEP 199)

(a) Definitions. The terms used in this clause are defined in the Rights in Technical Data--Noncommercial Items clause of this contract.

(b) Contracts for commercial items --presumption of development at private expense. Under a contract for a commercial item, component, or process, the Department of Defense shall presume that a Contractor's asserted use or release restrictions are justified on the basis that the item, component, or process was developed exclusively at private expense. The Department shall not challenge such assertions unless information the Department provides demonstrates that the item, component, or process was not developed exclusively at private expense.

(c) Justification. The Contractor or subcontractor at any tier is responsible for maintaining records sufficient to justify the validity of its markings that impose restrictions on the Government and others to use, duplicate, or disclose technical data delivered or required to be delivered under the contract or subcontract. Except under contracts for commercial items, the Contractor or subcontractor shall be prepared to furnish to the Contracting Officer a written justification for such restrictive markings in response to a challenge under paragraph (e) of this clause.

(d) Prechallenge request for information. (1) The Contracting Officer may request the Contractor or subcontractor to furnish a written explanation for any restriction asserted by the Contractor or subcontractor on the right of the United States or others to use technical data. If, upon review of the explanation submitted, the Contracting Officer remains unable to ascertain the basis of the restrictive marking, the Contracting Officer may further request the Contractor or subcontractor to furnish additional information in the records of, or otherwise in the possession of or reasonably available to, the Contractor or subcontractor to justify the validity of any restrictive marking on technical data delivered or to be delivered under the contract or subcontract (e.g., a statement of facts accompanied with supporting documentation). The Contractor or subcontractor shall submit such written data as requested by the Contracting Officer within the time required or such longer period as may be mutually agreed.

(2) If the Contracting Officer, after reviewing the written data furnished pursuant to paragraph (d)(1) of this clause, or any other available information pertaining to the validity of a restrictive marking, determines that reasonable grounds exist to question the current validity of the marking and that continued adherence to the marking would make impracticable the subsequent competitive acquisition of the item, component, or process to which the technical data relates, the Contracting Officer shall follow the procedures in paragraph (e) of this clause.

(3) If the Contractor or subcontractor fails to respond to the Contracting Officer's request for information under paragraph (d)(1) of this clause, and the Contracting Officer determines that continued adherence to the marking would make impracticable the subsequent competitive acquisition of the item, component, or process to which the technical data relates, the Contracting Officer may challenge the validity of the marking as described in paragraph (e) of this clause.

(e) Challenge.

(1) Notwithstanding any provision of this contract concerning inspection and acceptance, if the Contracting Officer determines that a challenge to the restrictive marking is warranted, the Contracting Officer shall send a written challenge notice to the Contractor or subcontractor asserting the restrictive markings. Such challenge shall--

(i) State the specific grounds for challenging the asserted restriction;

(ii) Require a response within sixty (60) days justifying and providing sufficient evidence as to the current validity of the asserted restriction;

(iii) State that a DoD Contracting Officer's final decision, issued pursuant to paragraph (g) of this clause, sustaining the validity of a restrictive marking identical to the asserted restriction, within the three-year period preceding the challenge, shall serve as justification for the asserted restriction if the validated restriction was asserted by the same Contractor or subcontractor (or any licensee of such Contractor or subcontractor) to which such notice is being provided; and

(iv) State that failure to respond to the challenge notice may result in issuance of a final decision pursuant to paragraph (f) of this clause.

(2) The Contracting Officer shall extend the time for response as appropriate if the Contractor or subcontractor submits a written request showing the need for additional time to prepare a response.

(3) The Contractor's or subcontractor's written response shall be considered a claim within the meaning of the Contract Disputes Act of 1978 (41 U.S.C. 601, et seq.), and shall be certified in the form prescribed at 33.207 of the Federal Acquisition Regulation, regardless of dollar amount.

(4) A Contractor or subcontractor receiving challenges to the same restrictive markings from more than one Contracting Officer shall notify each Contracting Officer of the existence of more than one challenge. The notice shall also state which Contracting Officer initiated the first in time unanswered challenge. The Contracting Officer initiating the first in time unanswered challenge after consultation with the Contractor or subcontractor and the other Contracting Officers, shall formulate and distribute a schedule for responding to each of the challenge notices to all interested parties. The schedule shall afford the Contractor or subcontractor an opportunity to respond to each challenge notice. All parties will be bound by this schedule.

(f) Final decision when Contractor or subcontractor fails to respond. Upon a failure of a Contractor or subcontractor to submit any response to the challenge notice, other than a failure to respond under a contract for commercial items, the Contracting Officer will issue a final decision to the Contractor or subcontractor in accordance with the Disputes clause of this contract pertaining to the validity of the asserted restriction. This final decision shall be issued as soon as possible after the expiration of the time period of paragraph (e)(1)(ii) or (e)(2) of this clause. Following issuance of the final decision, the Contracting Officer will comply with the procedures in paragraphs (g)(2) (ii) through (iv) of this clause.

(g) Final decision when Contractor or subcontractor responds.

(1) if the Contracting Officer determines that the Contractor or subcontractor has justified the validity of the restrictive marking, the Contracting Officer shall issue a final decision to the Contractor or subcontractor sustaining the validity of the restrictive marking, and stating that the Government will continue to be bound by the restrictive marking. This final decision shall be issued within sixty (60) days after receipt of the Contractor's or subcontractor's response to the challenge notice, or within such longer period that the Contracting Officer has notified the Contractor or subcontractor that the Government will require. The notification of a longer period for issuance of a final decision will be made within sixty (60) days after receipt of the response to the challenge notice.

(2)(i) If the Contracting Officer determines that the validity of the restrictive marking is not justified, the Contracting Officer shall issue a final decision to the Contractor or subcontractor in accordance with the Disputes clause of this contract. Notwithstanding paragraph (e) of the Disputes clause, the final decision shall be issued within sixty (60) days after receipt of the Contractor's or subcontractor's response to the challenge notice, or within such longer period that the Contracting Officer has notified the Contractor or subcontractor of the longer period that the Government will require. The notification of a longer period for issuance of a final decision will be made within sixty (60) days after receipt of the response to the challenge notice.

(ii) The Government agrees that it will continue to be bound by the restrictive marking of a period of ninety (90) days from the issuance of the Contracting Officer's final decision under paragraph (g)(2)(i) of this clause. The Contractor or subcontractor agrees that, if it intends to file suit in the United States Claims Court it will provide a notice of intent to file suit to the Contracting Officer within ninety (90) days from the issuance of the Contracting Officer's final decision under paragraph (g)(2)(i) of this clause. If the Contractor or subcontractor fails to appeal, file suit, or provide a notice of intent to file suit to the Contracting Officer within the ninety (90)-day period, the Government may cancel or ignore the restrictive markings, and the failure of the Contractor or subcontractor to take the required action constitutes agreement with such Government action.

(iii) The Government agrees that it will continue to be bound by the restrictive marking where a notice of intent to file suit in the United States Claims Court is provided to the Contracting Officer within ninety (90) days from the issuance of the final decision under paragraph (g)(2)(i) of this clause. The Government will no longer be bound, and the Contractor or subcontractor agrees that the Government may strike or ignore the restrictive markings, if the Contractor or subcontractor fails to file its suit within one (1) year after issuance of the final decision. Notwithstanding the foregoing, where the head of an agency determines, on a nondelegable basis, that urgent or compelling circumstances will not permit waiting for the filing of a suit in the United States Claims Court, the Contractor or subcontractor agrees that the agency may, following notice to the Contractor or subcontractor, authorize release or disclosure of the technical data. Such agency determination may be made at any time after issuance of the final decision and will not affect the Contractor's or subcontractor's right to damages against the United States where its restrictive markings are ultimately upheld or to pursue other relief, if any, as may be provided by law.

(iv) The Government agrees that it will be bound by the restrictive marking where an appeal or suit is filed pursuant to the Contract Disputes Act until final disposition by an agency Board of Contract Appeals or the United States Claims Court. Notwithstanding the foregoing, where the head of an agency determines, on a nondelegable basis, following notice to the Contractor that urgent or compelling circumstances will not permit awaiting the decision by such Board of Contract Appeals or the United States Claims Court, the Contractor or subcontractor agrees that the agency may authorize release or disclosure of the technical data. Such agency determination may be made at any time after issuance of the final decision and will not affect the Contractor's or subcontractor's right to damages against the United States where its restrictive markings are ultimately upheld or to pursue other relief, if any, as may be provided by law.

(h) Final disposition of appeal or suit. (1) If the Contractor or subcontractor appeals or files suit and if, upon final disposition of the appeal or suit, the Contracting Officer's decision is sustained--

(i) The restrictive marking on the technical data shall be cancelled, corrected or ignored; and

(ii) If the restrictive marking is found not to be substantially justified, the Contractor or subcontractor, as appropriate, shall be liable to the Government for payment of the cost to the Government of reviewing the restrictive marking and the fees and other expenses (as defined in 28 U.S.C. 2412(d)(2)(A)) incurred by the Government in challenging the marking, unless special circumstances would make such payment unjust.

(2) If the Contractor or subcontractor appeals or files suit and if, upon final disposition of the appeal or suit, the Contracting Officer's decision is not sustained--

(i) The Government shall continue to be bound by the restrictive marking; and

(ii) The Government shall be liable to the Contractor or subcontractor for payment of fees and other expenses (as defined in 28 U.S.C. 2412(d)(2)(A)) incurred by the Contractor or subcontractor in defending the marking, if the challenge by the Government is found not to have been made in good faith.

(i) Duration of right to challenge. The Government may review the validity of any restriction on technical data, delivered or to be delivered under a contract, asserted by the Contractor or subcontractor. During the period within three (3) years of final payment on a contract or within three (3) years of delivery of the technical data to the

Government, whichever is later, the Contracting Officer may review and make a written determination to challenge the restriction. The Government may, however, challenge a restriction on the release, disclosure or use of technical data at any time if such technical data--

- (1) Is publicly available;
- (2) Has been furnished to the United States without restriction; or
- (3) Has been otherwise made available without restriction. Only the Contracting Officer's final decision resolving a formal challenge by sustaining the validity of a restrictive marking constitutes "validation" as addressed in 10 U.S.C. 2321.
- (j) Decision not to challenge. A decision by the Government, or a determination by the Contracting Officer, to not challenge the restrictive marking or asserted restriction shall not constitute "validation."
- (k) Privity of contract. The Contractor or subcontractor agrees that the Contracting Officer may transact matters under this clause directly with subcontractors at any tier that assert restrictive markings. However, this clause neither creates nor implies privity of contract between the Government and subcontractors.
- (l) Flowdown. The Contractor or subcontractor agrees to insert this clause in contractual instruments with its subcontractors or suppliers at any tier requiring the delivery of technical data, except contractual instruments for commercial items or commercial components.

(End of clause)

252.231-7000 SUPPLEMENTAL COST PRINCIPLES (DEC 1991)

When the allowability of costs under this contract is determined in accordance with part 31 of the Federal Acquisition Regulation (FAR), allowability shall also be determined in accordance with part 231 of the Defense FAR Supplement, in effect on the date of this contract.

252.236-7000 MODIFICATION PROPOSALS - PRICE BREAKDOWN. (DEC 1991)

- (a) The Contractor shall furnish a price breakdown, itemized as required and within the time specified by the Contracting Officer, with any proposal for a contract modification.
- (b) The price breakdown --
 - (1) Must include sufficient detail to permit an analysis of profit, and of all costs for --
 - (i) Material;
 - (ii) Labor;
 - (iii) Equipment;
 - (iv) Subcontracts; and
 - (v) Overhead; and

- (2) Must cover all work involved in the modification, whether the work was deleted, added, or changed.
- (c) The Contractor shall provide similar price breakdowns to support any amounts claimed for subcontracts.
- (d) The Contractor's proposal shall include a justification for any time extension proposed.

252.236-7001 CONTRACT DRAWINGS, MAPS, AND SPECIFICATIONS (AUG 2000)

(a) The Government will provide to the Contractor, without charge, one set of contract drawings and specifications , except publications incorporated into the technical provisions by reference, in electronic or paper media as chosen by the Contracting Officer.

(b) The Contractor shall--

- (1) Check all drawings furnished immediately upon receipt;
- (2) Compare all drawings and verify the figures before laying out the work;
- (3) Promptly notify the Contracting Officer of any discrepancies;
- (4) Be responsible for any errors that might have been avoided by complying with this paragraph (b); and
- (5) Reproduce and print contract drawings and specifications as needed.

(c) In general--

- (1) Large-scale drawings shall govern small-scale drawings; and
- (2) The Contractor shall follow figures marked on drawings in preference to scale measurements.

(d) Omissions from the drawings or specifications or the misdescription of details of work that are manifestly necessary to carry out the intent of the drawings and specifications, or that are customarily performed, shall not relieve the Contractor from performing such omitted or misdescribed details of the work. The Contractor shall perform such details as if fully and correctly set forth and described in the drawings and specifications.

(e) The work shall conform to the specifications and the contract drawings identified on the following index of drawings:

See Section 00830

(End of clause)

252.236-7008 CONTRACT PRICES - BIDDING SCHEDULES. (DEC 1991)

(a) The Government's payment for the items listed in the Bidding Schedule shall constitute full compensation to the Contractor for --

- (1) Furnishing all plant, labor, equipment, appliances, and materials; and

(2) Performing all operations required to complete the work in conformity with the drawings and specifications.

(b) The Contractor shall include in the prices for the items listed in the Bidding Schedule all costs for work in the specifications, whether or not specifically listed in the Bidding Schedule.

252.242-7000 POSTAWARD CONFERENCE (DEC 1991)

The Contractor agrees to attend any postaward conference convened by the contracting activity or contract administration office in accordance with Federal Acquisition Regulation subpart 42.5.

(End of clause)

252.243-7001 PRICING OF CONTRACT MODIFICATIONS (DEC 1991)

When costs are a factor in any price adjustment under this contract, the contract cost principles and procedures in FAR part 31 and DFARS part 231, in effect on the date of this contract, apply.

252.243-7002 REQUESTS FOR EQUITABLE ADJUSTMENT (MAR 1998)

(a) The amount of any request for equitable adjustment to contract terms shall accurately reflect the contract adjustment for which the Contractor believes the Government is liable. The request shall include only costs for performing the change, and shall not include any costs that already have been reimbursed or that have been separately claimed. All indirect costs included in the request shall be properly allocable to the change in accordance with applicable acquisition regulations.

(b) In accordance with 10 U.S.C. 2410(a), any request for equitable adjustment to contract terms that exceeds the simplified acquisition threshold shall bear, at the time of submission, the following certificate executed by an individual authorized to certify the request on behalf of the Contractor:

I certify that the request is made in good faith, and that the supporting data are accurate and complete to the best of my knowledge and belief.

(Official's Name)

(Title)

(c) The certification in paragraph (b) of this clause requires full disclosure of all relevant facts, including--

(1) Cost or pricing data if required in accordance with subsection 15.403-4 of the Federal Acquisition Regulation (FAR); and

(2) Information other than cost or pricing data, in accordance with subsection 15.403-3 of the FAR, including actual cost data and data to support any estimated costs, even if cost or pricing data are not required.

(d) The certification requirement in paragraph (b) of this clause does not apply to----

(1) Requests for routine contract payments; for example, requests for payment for accepted supplies and services, routine vouchers under a cost-reimbursement type contract, or progress payment invoices; or

(2) Final adjustment under an incentive provision of the contract.

252.244-7000 SUBCONTRACTS FOR COMMERCIAL ITEMS AND COMMERCIAL COMPONENTS (DOD) (MAR 2000)

In addition to the clauses listed in paragraph (c) of the Subcontracts for Commercial Items and Commercial Components clause of this contract (Federal Acquisition Regulation 52.244-6), the Contractor shall include the terms of the following clauses, if applicable, in subcontracts for commercial items or commercial components, awarded at any tier under this contract:

252.225-7014 *Preference for Domestic Specialty Metals, Alternate I (10 U.S.C. 2241 note).*

252.247-7023 *Transportation of Supplies by Sea (10 U.S.C. 2631).*

252.247-7024 *Notification of Transportation of Supplies by Sea (10 U.S.C. 2631).*

(End of clause)

252.246-7000 MATERIAL INSPECTION AND RECEIVING REPORT (DEC 1991)

At the time of each delivery of supplies or services under this contract, the Contractor shall prepare and furnish to the Government a Material Inspection and Receiving Report in the manner and to the extent required by Appendix F, Material Inspection and Receiving Report, of the Defense FAR Supplement.

(End of clause)

252.247-7023 TRANSPORTATION OF SUPPLIES BY SEA (MAR 2000)

(a) Definitions. As used in this clause --

(1) "Components" means articles, materials, and supplies incorporated directly into end products at any level of manufacture, fabrication, or assembly by the Contractor or any subcontractor.

(2) "Department of Defense" (DoD) means the Army, Navy, Air Force, Marine Corps, and defense agencies.

(3) "Foreign flag vessel" means any vessel that is not a U.S.-flag vessel.

(4) "Ocean transportation" means any transportation aboard a ship, vessel, boat, barge, or ferry through international waters.

(5) "Subcontractor" means a supplier, materialman, distributor, or vendor at any level below the prime contractor whose contractual obligation to perform results from, or is conditioned upon, award of the prime contract and who is performing any part of the work or other requirement of the prime contract.

(6) "Supplies" means all property, except land and interests in land, that is clearly identifiable for eventual use by or owned by the DoD at the time of transportation by sea.

(i) An item is clearly identifiable for eventual use by the DoD if, for example, the contract documentation contains a reference to a DoD contract number or a military destination.

(ii) "Supplies" includes (but is not limited to) public works; buildings and facilities; ships; floating equipment and vessels of every character, type, and description, with parts, subassemblies, accessories, and equipment; machine tools; material; equipment; stores of all kinds; end items; construction materials; and components of the foregoing.

(7) "U.S.-flag vessel" means a vessel of the United States or belonging to the United States, including any vessel registered or having national status under the laws of the United States.

(b)(1) The Contractor shall use U.S.-flag vessels when transporting any supplies by sea under this contract.

(2) A subcontractor transporting supplies by sea under this contract shall use U.S.-flag vessels if--

(i) This contract is a construction contract; or

(ii) The supplies being transported are--

(A) Noncommercial items; or

(B) Commercial items that--

(1) The Contractor is reselling or distributing to the Government without adding value (generally, the Contractor does not add value to items that it contracts for f.o.b. destination shipment);

(2) Are shipped in direct support of U.S. military contingency operations, exercises, or forces deployed in humanitarian or peacekeeping operations; or

(3) Are commissary or exchange cargoes transported outside of the Defense Transportation System in accordance with 10 U.S.C. 2643.

(c) The Contractor and its subcontractors may request that the Contracting Officer authorize shipment in foreign-flag vessels, or designate available U.S.-flag vessels, if the Contractor or a subcontractor believes that --

(1) U.S.-flag vessels are not available for timely shipment;

(2) The freight charges are inordinately excessive or unreasonable; or

(3) Freight charges are higher than charges to private persons for transportation of like goods.

(d) The Contractor must submit any request for use of other than U.S.-flag vessels in writing to the Contracting Officer at least 45 days prior to the sailing date necessary to meet its delivery schedules. The Contracting Officer will process requests submitted after such date(s) as expeditiously as possible, but the Contracting Officer's failure to grant approvals to meet the shipper's sailing date will not of itself constitute a compensable delay under this or any other clause of this contract. Requests shall contain at a minimum --

(1) Type, weight, and cube of cargo;

(2) Required shipping date;

(3) Special handling and discharge requirements;

(4) Loading and discharge points;

(5) Name of shipper and consignee;

(6) Prime contract number; and

(7) A documented description of efforts made to secure U.S.-flag vessels, including points of contact (with names and telephone numbers) with at least two U.S.-flag carriers contacted. Copies of telephone notes, telegraphic and facsimile message or letters will be sufficient for this purpose.

(e) The Contractor shall, within 30 days after each shipment covered by this clause, provide the Contracting Officer and the Division of National Cargo, Office of Market Development, Maritime Administration, U.S. Department of Transportation, Washington, DC 20590, one copy of the rated on board vessel operating carrier's ocean bill of lading, which shall contain the following information --

(1) Prime contract number;

(2) Name of vessel;

(3) Vessel flag of registry;

(4) Date of loading;

(5) Port of loading;

(6) Port of final discharge;

(7) Description of commodity;

(8) Gross weight in pounds and cubic feet if available;

(9) Total ocean freight in U.S. dollars; and

(10) Name of the steamship company.

(f) The Contractor agrees to provide with its final invoice under this contract a representation that to the best of its knowledge and belief --

(1) No ocean transportation was used in the performance of this contract;

(2) Ocean transportation was used and only U.S.-flag vessels were used for all ocean shipments under the contract;

(3) Ocean transportation was used, and the Contractor had the written consent of the Contracting Officer for all non-

U.S.-flag ocean transportation; or

(4) Ocean transportation was used and some or all of the shipments were made on non-U.S.-flag vessels without the written consent of the Contracting Officer. The Contractor shall describe these shipments in the following format:

ITEM DESCRIPTION	CONTRACT LINE ITEMS	QUANTITY
_____	_____	_____
_____	_____	_____
_____	_____	_____
TOTAL	_____	_____

(g) If the final invoice does not include the required representation, the Government will reject and return it to the Contractor as an improper invoice for the purposes of the Prompt Payment clause of this contract. In the event there has been unauthorized use of non-U.S.-flag vessels in the performance of this contract, the Contracting Officer is entitled to equitably adjust the contract, based on the unauthorized use.

(h) The Contractor shall include this clause, including this paragraph (h), in all subcontractors under this contract that--

(1) Exceed the simplified acquisition threshold in Part 2 of the Federal Acquisition Regulation; and

(2) Are for a type of supplies described in paragraph (b)(3) of this clause.

(End of clause)

252.247-7024 NOTIFICATION OF TRANSPORTATION OF SUPPLIES BY SEA (MAR 2000)

(a) The Contractor has indicated by the response to the solicitation provision, Representation of Extent of Transportation by Sea, that it did not anticipate transporting by sea any supplies. If, however, after the award of this contract, the Contractor learns that supplies, as defined in the Transportation of Supplies by Sea clause of this contract, will be transported by sea, the Contractor --

(1) Shall notify the Contracting Officer of that fact; and

(2) Hereby agrees to comply with all the terms and conditions of the Transportation of Supplies by Sea clause of this contract.

(b) The Contractor shall include this clause; including this paragraph (b), revised as necessary to reflect the relationship of the contracting parties--

(1) In all subcontracts under this contract, if this contract is a construction contract; or

(2) If this contract is not a construction contract, in all subcontracts under this contract that are for--

(i) Noncommercial items; or

(ii) Commercial items that--

(A) The Contractor is reselling or distributing to the Government without adding value (generally, the Contractor does not add value to items that it subcontracts for f.o.b. destination shipment);

(B) Are shipped in direct support of U.S. military contingency operations, exercises, or forces deployed in humanitarian or peacekeeping operations; or

(C) Are commissary or exchange cargoes transported outside of the Defense Transportation System in accordance with 10 U.S.C. 2643.

(End of clause)

252.248-7000 PREPARATION OF VALUE ENGINEERING CHANGE PROPOSALS (MAY 1994)

Prepare value engineering change proposals, for submission pursuant to the value engineering clause of this contract, in the format prescribed by the version of MIL-STD-973 in effect on the date of contract award.

(End of clause)

SECTION 00800 Special Contract Requirements

CLAUSES INCORPORATED BY FULL TEXT

52.000-4004 PARTNERING

The Government proposes to form a partnering relationship with the contractor. This partnering relationship will strive to facilitate communication and draw on the strengths of each organization in an effort to achieve a quality project, within budget, and on schedule. Participation will be totally voluntary. Partnering will not alter or supersede any provision of this contract nor will it provide either party with any additional contractual rights or obligations. Participation in partnering will not affect award of this contract. Any cost associated with this partnering will be agreed to by both parties and will be shared equally, with no change in contract price.

52.212-4003 TIME EXTENSIONS FOR UNUSUALLY SEVERE WEATHER (OCT 1989) ER 415-1-15

a. This provision specifies the procedure for the determination of time extensions for unusually severe weather in accordance with the CONTRACT CLAUSES: DEFAULT (FIXED-PRICE CONSTRUCTION). In order for the Contracting Officer to award a time extension under this clause, the following conditions must be satisfied:

- 1) The weather experienced at the project site during the contract period must be found to be unusually severe, that is, more severe than the adverse weather anticipated for the project location during any given month.
- 2) The unusually severe weather must actually cause a delay to the completion of the project. The delay must be beyond the control and without the fault or negligence of the contractor.

b. The following schedule of monthly anticipated adverse weather delays is based on National Oceanic and Atmospheric Administration (NOAA) or similar data for the project location and will constitute the base line for monthly weather time evaluations. The contractor's progress schedule must reflect these anticipated adverse weather delays in all weather dependent activities.

MONTHLY ANTICIPATED ADVERSE WEATHER DELAY
WORKDAYS BASED ON (5) DAY WORKWEEK.

GEOGRAPHIC LOCATION -- Grand Forks, ND & East Grand Forks, MN

Month	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC
Days	20	14	9	3	3	4	4	4	3	2	7	17

c. Upon acknowledgment of the Notice to Proceed (NTP) and continuing throughout the contract, the contractor will record on the daily CQC report, the occurrence of adverse weather and resultant impact to normally scheduled work. Actual adverse weather delay days must prevent work on critical activities for 50 percent or more of the Contractor's scheduled workday. The number of actual adverse weather delay days shall include days impacted by actual adverse weather (even if adverse weather occurred in previous month), be calculated chronologically from the first to the last day of each month, and be recorded as full days. If the number of actual adverse weather delay days exceeds the number of days anticipated in paragraph b, above, the Contracting Officer will convert any qualifying delays to calendar days, giving full consideration for equivalent fair weather work days, and issue a modification in accordance with the CONTRACT CLAUSES: DEFAULT (FIXED-PRICE CONSTRUCTION).

52.222-4008 DAVIS-BACON WAGE DETERMINATION - CONFLICTING SCHEDULES

MINNESOTA AND NORTH DAKOTA

Work under this contract will be performed in both Minnesota and North Dakota. Wage determinations for both Minnesota and North Dakota are included as attachments in Section 00830 of the specifications. Some work under this contract may require members of the contractor's work force to perform work in both states. The contractor shall segregate the work performed in each state and under each wage determination on its payrolls. In the event that it is impracticable to segregate an employee's work, or in the event of a conflict as to the place of performance of that work, the wage classification (and rate) resulting in the highest rate of pay/fringe benefits to that employee will apply.

52.228-4003 RAILROAD PROTECTIVE LIABILITY INSURANCE

a. In addition to any other insurance required by this contract, the Contractor shall be responsible for complying with all requirements of "Exhibit E – Insurance and Flagging Requirements for Construction Projects on or Adjacent to Property of The Burlington Northern and Santa Fe Railway Company".

b. No work shall be performed within the right-of-way of the Burlington Northern and Santa Fe Railway Company prior to the approval of the railroad protective liability insurance by the Contracting Officer. Said insurance shall remain in force and the Contractor completes AND the Government accepts all work to be performed in the railroad's right-of-way.

c. Regardless of the obligations, none of the herein nor the obligations in "Exhibit E – Insurance and Flagging Requirements for Construction Projects on or Adjacent to Property of The Burlington Northern and Santa Fe Railway Company" shall be cause for an equitable adjustment.

52.228-4022 REQUIREMENT FOR BID GUARANTEE (FAR 28.101-2)

Each bidder shall submit with its bid a Bid Bond (Standard Form 24) with good and sufficient surety or sureties acceptable to the Government or other security as provided in the clause BID GUARANTEE in the form of twenty percent (20%) of the bid price or \$3,000,000 whichever is lesser. The bid bond penalty may be expressed in terms of a percentage of the bid price or may be expressed in dollars and cents.

52.231-5000 EQUIPMENT OWNERSHIP AND OPERATING EXPENSE SCHEDULE

MAR 1995)—EFARS

(a) This clause does not apply to terminations. See 52.249-5000, Basis for Settlement of Proposals and FAR Part 49.

(b) Allowable cost for construction and marine plant and equipment in sound workable condition owned or controlled and furnished by a contractor or subcontractor at any tier shall be based on actual cost data for each piece of equipment or groups of similar serial and series for which the Government can determine both ownership and operating costs from the contractor's accounting records. When both ownership and operating costs cannot be determined for any piece of equipment or groups of similar serial or series equipment from the contractor's accounting records, costs for that equipment shall be based upon the applicable provisions of EP 1110-1-8, Construction Equipment Ownership and Operating Expense Schedule, Region IV. Working conditions shall be considered to be average for determining equipment rates using the schedule unless specified otherwise by the

contracting officer. For equipment not included in the schedule, rates for comparable pieces of equipment may be used or a rate may be developed using the formula provided in the schedule. For forward pricing, the schedule in effect at the time of negotiations shall apply. For retroactive pricing, the schedule in effect at the time the work was performed shall apply.

(c) Equipment rental costs are allowable, subject to the provisions of FAR 31.105(d)(ii) and FAR 31.205-36. Rates for equipment rented from an organization under common control, lease-purchase arrangements, and sale-leaseback arrangements, will be determined using the schedule, except that actual rates will be used for equipment leased from an organization under common control that has an established practice of leasing the same or similar equipment to unaffiliated lessees.

(d) When actual equipment costs are proposed and the total amount of the pricing action exceeds the small purchase threshold, the contracting officer shall request the contractor to submit either certified cost or pricing data, or partial/limited data, as appropriate. The data shall be submitted on Standard Form 1411, Contract Pricing Proposal Cover Sheet.

(End of clause)

52.232-4004 INVOICE PROCEDURES

In accordance with CONTRACT CLAUSE titled "PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS", the contractor shall submit invoices as follows:

a. In order to qualify for a periodic payment, the Contractor must submit a proper invoice (request for payment) to the Contracting Officer's Representative (COR) and a determination must be made that supplies or services conform to the contract requirements. This determination will be made for the sole purpose of processing progress payments and will not constitute formal acceptance. The due date for making progress payments shall be as stated in the contract clause: PROMPT PAYMENT FOR CONSTRUCTION CONTRACTS.

b. The submitted request for payment must be accompanied with documentation adequate to substantiate the amount requested. Substantiation shall be consistent with the clauses in the solicitation titled Quantity Surveys, Purchase Orders, Invoices, etc. satisfactory to the COR.

c. The Contractor must also include with the payment request a certification as described in the Clause "PAYMENT UNDER FIXED-PRICE CONSTRUCTION CONTRACTS".

d. Payment requests will be reviewed for propriety by the COR. Defective invoices will be returned to the Contractor for resolution with defects identified. Along with the returned invoice, the COR may include, at its option, an ENG FORM 93-PAYMENT ESTIMATE reflecting the substantiated and uncontested payment amount. The Contractor will then be given the option of signing and returning the FORM 93 for payment along with the original invoice and certification or resubmitting a revised invoice and certification. To expedite payment, the Contractor may request in writing that the COR retain the defective invoice and immediately process the payment request at the amount determined to be acceptable to the Government.

52.232-5001 CONTINUING CONTRACTS (MAR 1995)—EFARS

(a) This is a continuing contract, as authorized by Section 10 of the River and Harbor Act of September 22, 1922 (33 U.S. Code 621). The payment of some portion of the contract price is dependent upon reservations of funds from future appropriations, and from future contribution to the project having one or more non-federal project sponsors. The responsibilities of the Government are limited by this clause notwithstanding any contrary provision of the "Payments to Contractor" clause or any other clause of this contract.

(b) The sum of \$2.5 Million has been reserved for this contract and is available for payments to the contractor during the current fiscal year. It is expected that Congress will make appropriations for future fiscal years from which additional funds together with funds provided by one or more non-federal project sponsors will be reserved for this contract.

(c) Failure to make payments in excess of the amount currently reserved, or that may be reserved from time to time, shall not entitle the contractor to a price adjustment under the terms of this contract except as specifically provided in paragraphs (f) and (i) below. No such failure shall constitute a breach of this contract, except that this provision shall not bar a breach-of-contract action if an amount finally determined to be due as a termination allowance remains unpaid for one year due solely to a failure to reserve sufficient additional funds therefore.

(d) The Government may at any time reserve additional funds for payments under the contract if there are funds available for such purpose. The contracting officer will promptly notify the contractor of any additional funds reserved for the contract by issuing an administrative modification to the contract.

(e) If earnings will be such that funds reserved for the contract will be exhausted before the end of any fiscal year, the contractor shall give written notice to the contracting officer of the estimated date of exhaustion and the amount of additional funds which will be needed to meet payments due or to become due under the contract during that fiscal year. This notice shall be given not less than 45 nor more than 60 days prior to the estimated date of exhaustion.

(f) No payments will be made after exhaustion of funds except to the extent that additional funds are reserved for the contract. The contractor shall be entitled to simple interest on any payment that the contracting officer determines was actually earned under the terms of the contract and would have been made except for exhaustion of funds. Interest shall be computed from the time such payment would otherwise have been made until actually or constructively made, and shall be at the rate established by the Secretary of the Treasury pursuant to Public Law 92-41, 85 STAT 97, as in effect on the first day of the delay in such payment.

(g) Any suspension, delay, or interruption of work arising from exhaustion or anticipated exhaustion of funds shall not constitute a breach of this contract and shall not entitle the contractor to any price adjustment under the "Suspension of Work" clause or in any other manner under this contract.

(h) An equitable adjustment in performance time shall be made for any increase in the time required for performance of any part of the work arising from exhaustion of funds or the reasonable anticipation of exhaustion of funds.

(i) If, upon the expiration of sixty (60) days after the beginning of the fiscal year following an exhaustion of funds, the Government has failed to reserve sufficient additional funds to cover payments otherwise due, the contractor, by written notice delivered to the contracting officer at any time before such additional funds are reserved, may elect to treat his right to proceed with the work as having been terminated. Such a termination shall be considered a termination for the convenience of the Government.

(j) If at any time it becomes apparent that the funds reserved for any fiscal year are in excess of the funds required to meet all payments due or to become due the contractor because of work performed and to be performed under the contract during the fiscal year, the Government reserves the right, after notice to the contractor, to reduce said reservation by the amount of such excess.

(End of clause)

Two legible copies of each purchase order issued by the Contractor or the Contractor's subcontractors for materials and equipment to be incorporated into the project, shall be furnished the Contracting Officer as soon as issued. Each purchase order shall (1) be clearly identified with applicable Department of Army contract number, (2) carry and identifying number, (3) be in sufficient detail to identify the material being purchased, and (4) indicate a definite delivery date. At the option of the Contractor, the copies of the purchase orders may or may not indicate the price of the articles purchased.

52.239-4001 *YEAR 2000 COMPLIANCE (FAR 39.106) (JUL 1998)*

The contractor shall ensure that, with respect to any design, construction, goods, or services under this contract as well as any subsequent task/delivery orders issued under this contract (if applicable), all information technology contained therein shall be Year 2000 compliant. Specifically, the contractor shall perform, maintain, and provide an inventory of all major components to include structures, equipment, items, parts, and furnishings under this contract and each task/delivery order which may be affected by the Year 2000 compliance requirement.

52.246-4001 *LABORATORY AND TESTING FACILITIES*

The Contractor shall provide and maintain all measuring and testing devices, laboratory equipment, instruments, transportation, and supplies necessary to accomplish the required testing. All measuring and testing devices shall be calibrated at established intervals against certified standards. The Contractor's measuring and testing equipment shall be made available for use by the Government for verification of their accuracy and condition as well as for any inspection or test desired pursuant to Section 00800: INSPECTION OF CONSTRUCTION. The location of the laboratory shall be convenient to the site such that test results are available prior to proceeding with the next sequential phase of the work.

52.249-5000 *BASIS FOR SETTLEMENT OF PROPOSALS*

“Actual costs will be used to determine equipment costs for a settlement proposal submitted on the total cost basis under FAR 49.206-2(b). In evaluating a terminations settlement proposal using the total cost basis, the following principles will be applied to determine allowable equipment costs:

- (1) Actual costs for each piece of equipment, or groups of similar serial or series equipment, need not be available in the contractor's accounting records to determine total actual equipment costs.
- (2) If equipment costs have been allocated to a contract using predetermined rates, those charges will be adjusted to actual costs.
- (3) Recorded job costs adjusted for unallowable expenses will be used to determine equipment operating expenses.
- (4) Ownership costs (depreciation) will be determined using the contractor's depreciation schedule (subject to the provisions of FAR 31.205-11).
- (5) License, taxes, storage and insurance costs are normally recovered as an indirect expense and unless the contractor charges these costs directly to contracts, they will be recovered through the indirect expense rate.”

(End of Clause)

SECTION 00830

ATTACHMENTS

INDEX

ATTACHMENT	TITLE
1	SECTION 401 PERMIT
2	WAGE RATES
3	MATERIAL SOURCES
4	RAILROAD REQUIREMENTS FOR INSURANCE AND FLAGGING
5	LOCAL PRECIPITATION AND FLOW FREQUENCY

ENGLISH COULEE

SECTION 00830

ATTACHMENT 1

SECTION 401 PERMIT

SECTION 00830

ATTACHMENT 2

WAGE RATES

GENERAL
DECISION NUMBER

CONSTRUCTION TYPE

PAGE

"WAGE RATES PENDING"

ENGLISH COULEE

SECTION 00830

ATTACHMENT 3

MATERIAL SOURCES

ENGLISH COULEE

SECTION 00830

ATTACHMENT 4

RAILROAD REQUIREMENTS FOR INSURANCE AND FLAGGING

ENGLISH COULEE

SECTION 00830

ATTACHMENT 5

LOCAL PRECIPITATION AND FLOW FREQUENCY



NORTH DAKOTA DEPARTMENT OF HEALTH
Environmental Health Section

Location:

1200 Missouri Avenue
Bismarck, ND 58504-5264

Fax #:

701-328-5200

Mailing Address:

P.O. Box 5520
Bismarck, ND 58506-5520

September 17, 1998

John Shyne
Environmental Resources Section
Management & Evaluation Branch
St. Paul District, Corps of Engineers
Army Corps of Engineers Centre
190 - 5th St. E
St. Paul, MN 55101-1638

Dear Mr. Shyne:

This Department has completed its review of the Draft Environmental Impact Statement and 404(b)1 Evaluation for Flood Reduction at East Grand Forks, Minnesota, and Grand Forks, North Dakota.

Many of the project features can affect water quality and aquatic life, however, the preferred alternative results in reduced impacts to the riverine system during most flow events.

We have no objection to the issuance of a Section 404 permit. Furthermore, under Section 401 of the Clean Water Act, this Department hereby certifies this project will not violate applicable State Water Quality Standards, if the following are attached as conditions to the permit:

1. Compliance with our construction and environmental disturbance requirements (enclosed).
2. Wherever feasible, ponds are constructed for the purpose of collecting stormwater prior to discharge. The ponds should be sized to provide sufficient time for sediment removal.
3. The closure structure at the mouth of English Coulee be designed to allow fish passage during non-flood events.

Should you have any questions, I can be reached at 701-328-5237.

Sincerely,

Michael T. Sauer
Senior Scientist
Division of Water Quality

MTS:dgg
Enc:

Environmental Health
Section Chief's Office
701-328-5150

Environmental
Engineering
701-328-5188

Municipal
Facilities
701-328-5211

Waste
Management
701-328-5166

Water
Quality
701-328-5210



NORTH DAKOTA
DEPARTMENT OF HEALTH

JUNE 1996

ENVIRONMENTAL HEALTH SECTION

1200 Missouri Avenue
P.O. Box 5520
Bismarck, North Dakota 58506-5520
Fax #701-328-5200

Construction and Environmental Disturbance Requirements

These represent the minimum requirements of the North Dakota Department of Health. They ensure that minimal environmental degradation occurs as a result of construction or related work which has the potential to affect the waters of the State of North Dakota. All projects will be designed and implemented to restrict the losses or disturbances of soil, vegetative cover, and pollutants (chemical or biological) from a site.

Soils

Prevent the erosion of exposed soil surfaces and trapping sediments being transported. Examples include, but are not restricted to, sediment dams or berms, diversion dikes, hay bales as erosion checks, riprap, mesh or burlap blankets to hold soil during construction, and immediately establishing vegetative cover on disturbed areas after construction is completed. Fragile and sensitive areas such as wetlands, riparian zones, delicate flora, or land resources will be protected against compaction, vegetation loss, and unnecessary damage.

Surface Waters

All construction which directly or indirectly impacts aquatic systems will be managed to minimize impacts. All attempts will be made to prevent the contamination of water at construction sites from fuel spillage, lubricants, and chemicals, by following safe storage and handling procedures. Stream bank and stream bed disturbances will be controlled to minimize and/or prevent silt movement, nutrient upsurges, plant dislocation, and any physical, chemical, or biological disruption. The use of pesticides or herbicides in or near these systems is forbidden without approval from this Department.

Fill Material

Any fill material placed below the high water mark must be free of top soils, decomposable materials, and persistent synthetic organic compounds (in toxic concentrations). This includes, but is not limited to, asphalt, tires, treated lumber, and construction debris. The Department may require testing of fill materials. All temporary fills must be removed. Debris and solid wastes will be removed from the site and the impacted areas restored as nearly as possible to the original condition.

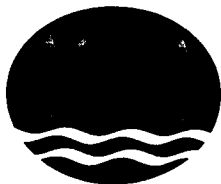
Environmental Health Section
and Enforcement
701-328-5150

Environmental
Engineering
701-328-5188

Municipal
Facilities
701-328-5211

Waste
Management
701-328-5166

Water
Quality
701-328-5210



Minnesota Pollution Control Agency

October 5, 1998

Mr. Robert J. Whiting
Chief, Environmental Resource Section
Management and Evaluation Branch
St. Paul District - Us. Army Corps of Engineers
190 Fifth Street East
St. Paul, Minnesota 55101-1638

RE: East Grand Forks, Draft EIS and 404(b)(1) Evaluation
Polk County, Minnesota
401 Certification

Dear Mr. Whiting:

This letter is submitted by the Minnesota Pollution Control Agency (MPCA) under authority of Section 401 of the Clean Water Act (33 USC 1251 et seq.) and Minn. Stat. chs. 115 and 116. The referenced project involves a proposal to construct a multi-featured flood control project to protect the Cities of East Grand Forks, Minnesota and Grand Forks, North Dakota from floods. The project will require a total of 735 acres of fee title real estate interest; the acquisition of approximately 300 residential structures, 95 apartment or condominium units and 16 businesses.

The project includes a 1.2 mile, new diversion, to carry flows from Hartsville Coulee on the East Grand Forks side, 16 miles of levees and about 1 mile of floodwalls. The construction of the project will result in a large "greenway" being left between the river banks and the new levee system.

The MPCA certifies the referenced project since the project's individual and cumulative impacts do not appear to be significant as defined by present water quality standards. The project will require a stormwater construction permit. The changes proposed to the lift stations will also require our approval through a permit modification to the East Grand Forks National Pollutant Discharge Elimination System Permit. Please contact our Detroit Lakes office for the necessary permits.

This action does not exempt the applicant from the responsibility of complying with all applicable local, state and federal requirements; nor does it grant any right to violate personal or property rights.

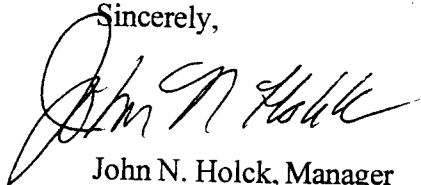
Mr. Robert J. Whiting

October 5, 1998

Page 2

If you have any questions on this, please call Jeff Lewis at our Detroit Lakes Office at 218-847-1519.

Sincerely,

A handwritten signature in dark ink, appearing to read "John N. Holck". The signature is fluid and cursive, with the first name "John" being more prominent than the last name "Holck".

John N. Holck, Manager
Operations/Planning/Major Facilities
South District

JNH/JRL:sb

cc: Mr. Kevin M. Pierard, U.S. Environmental Protection Agency Chicago
Ms. Lynn Lewis, Field Supervisor, U.S. Fish and Wildlife Service
Mr. Kent Lokkesmoe, Director, Division of Waters, MNDNR
Mr. Steve Colvin, Ecological Services, Environmental Review, MNDNR
Mr. Mike Sauer, North Dakota Department of Health

ATTACHMENT 3 MATERIAL SOURCES

CONCRETE AGGREGATE SOURCES

SOURCE OR OPERATOR

LOCATION

Fine Concrete Aggregate:

Forester Pit
Bradshaw Gravel Supply
(Strata Corp.)
(701) 746-7491

Trail Pit
Bradshaw Gravel Supply
(Strata Corp.)
(701) 746-7491

Anderson Pit
Bradshaw Gravel Supply
(Strata Corp.)
(701) 746-7491

Loeffler Pit
Loeffler Concrete & Gravel
(218) 265-2676

NW ¼, Sec. 32
T 160 N, R 46 W
Kittson County, MN

Sec. 25
T 150 N, R 40 W
Polk County, MN

Sec. 6
T 138 N, R 41 W
Becker County, MN

E ½, Sec. 17
T 160 N, R 46 W
Kittson County, MN

Coarse Concrete Aggregate:

J & S Gravel Pit
Northern Paving Co.
(218) 281-5101

Forester Pit
Bradshaw Gravel Supply
(Strata Corp.)
(701) 746-7491

Trail Pit
Bradshaw Gravel Supply
(Strata Corp.)
(701) 746-7491

Anderson Pit
Bradshaw Gravel Supply
(Strata Corp.)
(701) 746-7491

Loeffler Pit
Loeffler Concrete & Gravel
(218) 265-2676

SE ¼, Sec. 30
T 150 N, R 44 W
Red Lake County, MN

NW ¼, Sec. 32
T 160 N, R 46 W
Kittson County, MN

Sec. 25
T 150 N, R 40 W
Polk County, MN

Sec. 6
T 138 N, R 41 W
Becker County, MN

E ½, Sec. 17
T 160 N, R 46 W
Kittson County, MN

ATTACHMENT 3 MATERIAL SOURCES

RIPRAP STONE SOURCES

SOURCE OR OPERATOR

LOCATION

Trail Pit
Bradshaw Gravel Supply
Box 13500
Grand Forks, ND 58208
(701) 746-7491

T 150 N, R 40 W
Section 25
Polk County, MN

Dave Dunham Pit
Felton, MN
(218) 494-3360

T 142 N, R 45 W
Sections 28 and 29
Clay County, MN

CAMAS Kost Division
Box 1036
Moorhead, MN
(218) 236-9640

T 142 N, R 45 W
W 1/2, Section 32
Clay County, MN

Southerland Quarry
Bradshaw Gravel Supply
Box 13500
Grand Forks, ND 58208
(701) 746-7491

T 162 N, R 34 W
NW 1/4, SW 1/4, Section 6
Lake of the Woods County, MN

Meridian Aggregate Co.
Box 69
St. Cloud, MN
(320) 251-7141

T 124 N, R 28 W
SE 1/4, Section 18
Stearns County, MN

Meridian Aggregate Co.
200 14th Street
Granite Falls, MN
(320) 564-2125

T 116 N, R 39 W
Sections 28, 29, 32, 33
Yellow Medicine County, MN

Ortonville Stone Co.
Box 67
Ortonville, MN
(320) 839-6131

T 121 N, R 46 W
SW 1/4, Section 26
Big Stone County, MN

EXHIBIT "E"
INSURANCE AND FLAGGING REQUIREMENTS
FOR CONSTRUCTION PROJECTS ON OR ADJACENT TO PROPERTY OF
THE BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY

SECTION 1. INSURANCE.

(a). Before commencing any work under this Agreement, Contractor must provide and maintain in effect throughout the term of this Agreement insurance, at Contractor's expense, covering all of the work and services to be performed hereunder by Contractor and each of its subcontractors, as described below:

(1). Workers' Compensation coverage as is required by State law. **THE CERTIFICATE MUST CONTAIN A SPECIFIC WAIVER OF THE INSURANCE COMPANY'S SUBROGATION RIGHTS AGAINST THE BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY.**

(2). Commercial General Liability insurance covering liability, including but not limited to Public Liability, Personal Injury, Property Damage and Contractual Liability covering the obligations assumed by Contractor in Section 1, with coverage of at least \$2,000,000 per occurrence and \$4,000,000 in the aggregate. Where explosion, collapse, or underground hazards are involved, the X, C, and U exclusions must be removed from the policy.

(3). Automobile Liability insurance, including bodily injury and property damage, with coverage of at least \$1,000,000 combined single limit or the equivalent covering any and all vehicles owned or hired by the Contractor and used in performing any of the services under this agreement.

(4). Railroad Protective Liability insurance stating The Burlington Northern and Santa Fe Railway Company is the Named Insured covering all of the liability assumed by the Contractor under the provisions of this Agreement with coverage of at least \$2,000,000 per occurrence and \$6,000,000 in the aggregate. Coverage shall be issued on a standard ISO form CG 00 35 01 96 and endorsed to include ISO form CG 28 31 10 93 and the Limited Seepage and Pollution Endorsement (see section i. below).

(b). The average train traffic per 24-hour period on this route is ___ freight trains at a timetable speed of ___ MPH and ___ passenger trains at a timetable speed of ___ MPH and ___ switch engine movements.

(c). All insurance shall be placed with insurance companies licensed to do business in the States in which the work is to be performed, and with a current Best's Insurance Guide Rating of A- and Class VII, or better.

(d). In all cases except Workers' Compensation and Railroad Protective Liability coverage the certificate must specifically state that **THE BURLINGTON NORTHERN AND SANTA FE RAILWAY COMPANY IS AN ADDITIONAL INSURED.**

(e) Any coverage afforded Railway, the Certificate Holder, as an Additional Insured shall apply as primary and not excess to any coverage issued in the name of Railway.

(f). Such insurance shall be approved by the Railway before any work is performed on Railway's Property and shall be carried until all work required to be performed on or adjacent to Railway's Property under the terms of the contract is satisfactorily completed as determined by _____ Department of Transportation, and thereafter until all tools, equipment and materials not belonging to the Railway, have been removed from Railway's Property and Railway Property is left in a clean and presentable condition. The insurance herein required shall be obtained by the Contractor and Contractor shall furnish Railway with an original certificate of insurance, signed by the insurance company, or its authorized representative, evidencing the issuance of insurance coverage as prescribed in (a) 1, 2 and 3 above, plus the original Railroad Protective Liability insurance policy to:

Attention: Insurance Approvals

February 11, 2000

Engineering Services
The Burlington Northern Santa Fe Railway Company
4515 Kansas Avenue
Kansas City, Kansas 66106

(g). The certificate of insurance shall guarantee that the policies will not be amended, altered, modified or canceled in so far as the coverage contemplated hereunder is concerned, without at least thirty (30) days notice mailed by registered mail to Railway.

(h). Full compensation for all premiums which the Contractor is required to pay on all the insurance described hereinafter shall be considered as included in the prices paid for the various items of work to be performed under the Contract, and no additional allowance will be made therefor or for additional premiums which may be required by extensions of the policies of insurance.

(i). Limited seepage, pollution, and contamination coverage endorsement wording.

In consideration of the premium charged it is understood and agreed that Exclusion f. of Section 1. of this Policy shall not apply to the liability of the Insured resulting from seepage and/or pollution and/or contamination caused solely by:

- (1). unintended fire, lightning or explosion: or
- (2). a collision or overturning of a road vehicle: or
- (3). a collision or overturning or derailment of a train.

Notwithstanding the foregoing it is agreed that the coverage provided by this Endorsement shall not apply to:

1. loss of, damage to or loss of use of property directly or indirectly resulting from sub-surface operations of the Insured, and/or removal of, loss of or damage to sub-surface oil, gas or any other substance;
2. any site or location used in whole or in part for the handling, processing, treatment, storage, disposal or dumping of any waste materials or substances;
3. the cost of evaluating and/or monitoring and/or controlling seeping and/or polluting and/or contaminating substances;
4. the cost of removing and/or nullifying and/or cleaning up seeping and/or polluting and/or contaminating substances on property at any time owned and/or leased and/or rented by the insured and/or under the control of the Insured.

Notwithstanding the foregoing, Item 1 does not apply to tunnels.

It is further distinctly understood and agreed by the Contractor that its liability to the Railway herein under SECTION 1 will not in any way be limited to or affected by the amount of insurance obtained and carried by the Contractor in connection with said Contract.

SECTION 2. PROTECTION OF RAILWAY FACILITIES AND RAILWAY FLAGGER SERVICES

(a). The Contractor shall give a minimum of at least thirty (30) working days notice to _____ the Railways Roadmaster at telephone _____, in advance of when flagging services will be required to bulletin the flaggers position and shall provide five (5) working days notice to the Roadmaster to abolish the position per union requirements.

(b). Railway flagger and protective services and devices will be required and furnished when Contractor's work activities are located over or under of and within twenty-five (25) feet measured horizontally from center line of the nearest track and when cranes or similar equipment positioned outside of 25-foot horizontally from track center line that could foul the track in the event of tip over or other catastrophic occurrence, but not limited thereto for the following conditions:

(1). When in the opinion of the Railway's representative, it is necessary to safeguard Railway's Property, employees, trains, engines and facilities.

(2). When any excavation is performed below the bottom of tie elevation, if, in the opinion of Railway's representative, track or other Railway facilities may be subject to movement or settlement.

(3). When work in any way interferes with the safe operation of trains at timetable speeds.

(4). When any hazard is presented to Railway track, communications, signal, electrical, or other facilities either due to persons, material, equipment or blasting in the vicinity.

(5). Special permission must be obtained from the Railway before moving heavy or cumbersome objects or equipment which might result in making the track impassable.

(c). Flagging services will be performed by qualified Railway flaggers. The base cost per hour for (1) flagger is \$50.00 which includes vacation allowance, paid holidays, Railway and Unemployment Insurance, Public Liability and Property Damage Insurance, health and welfare benefits, transportation, meals, lodging and supervision, for an eight (8) hour basic day with time and one-half or double time for overtime, rest days and holidays. These rates are subject to any increases which may result from Railway Employees-Railway Management negotiations or which may be authorized by Federal authorities. State/Contractor will be billed on actual costs in effect at time work is performed.

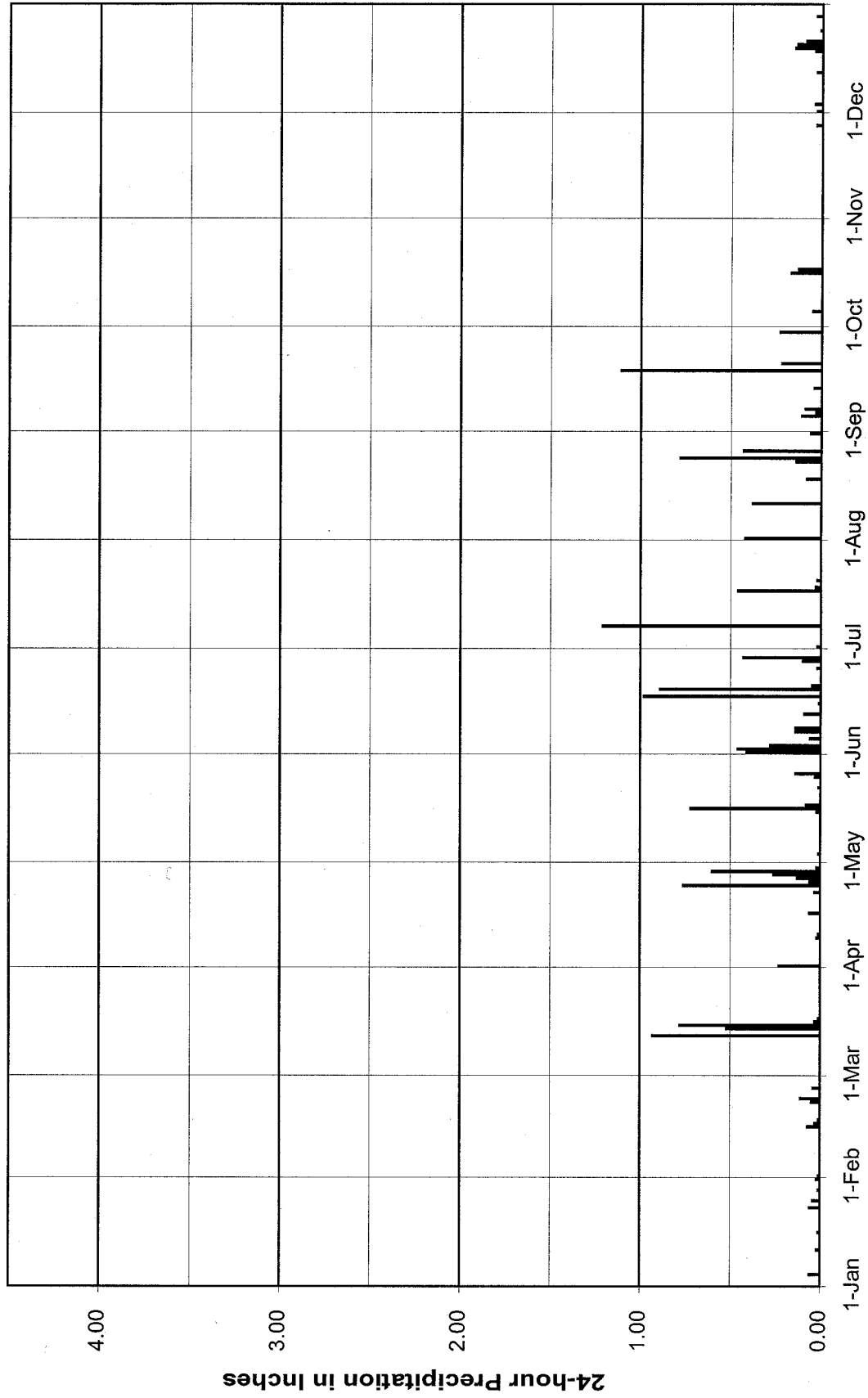
(1). A flagging crew generally consists of one employee. However, additional personnel may be required to protect Railway Property and operations, if deemed necessary by the Railway's representative.

(2). Each time a flagger is called, the minimum period for billing shall be the eight (8) hour basic day.

(3). The cost of flagger services provided by the Railway, when deemed necessary by the Railway's representative, will be borne by the State/Contractor.

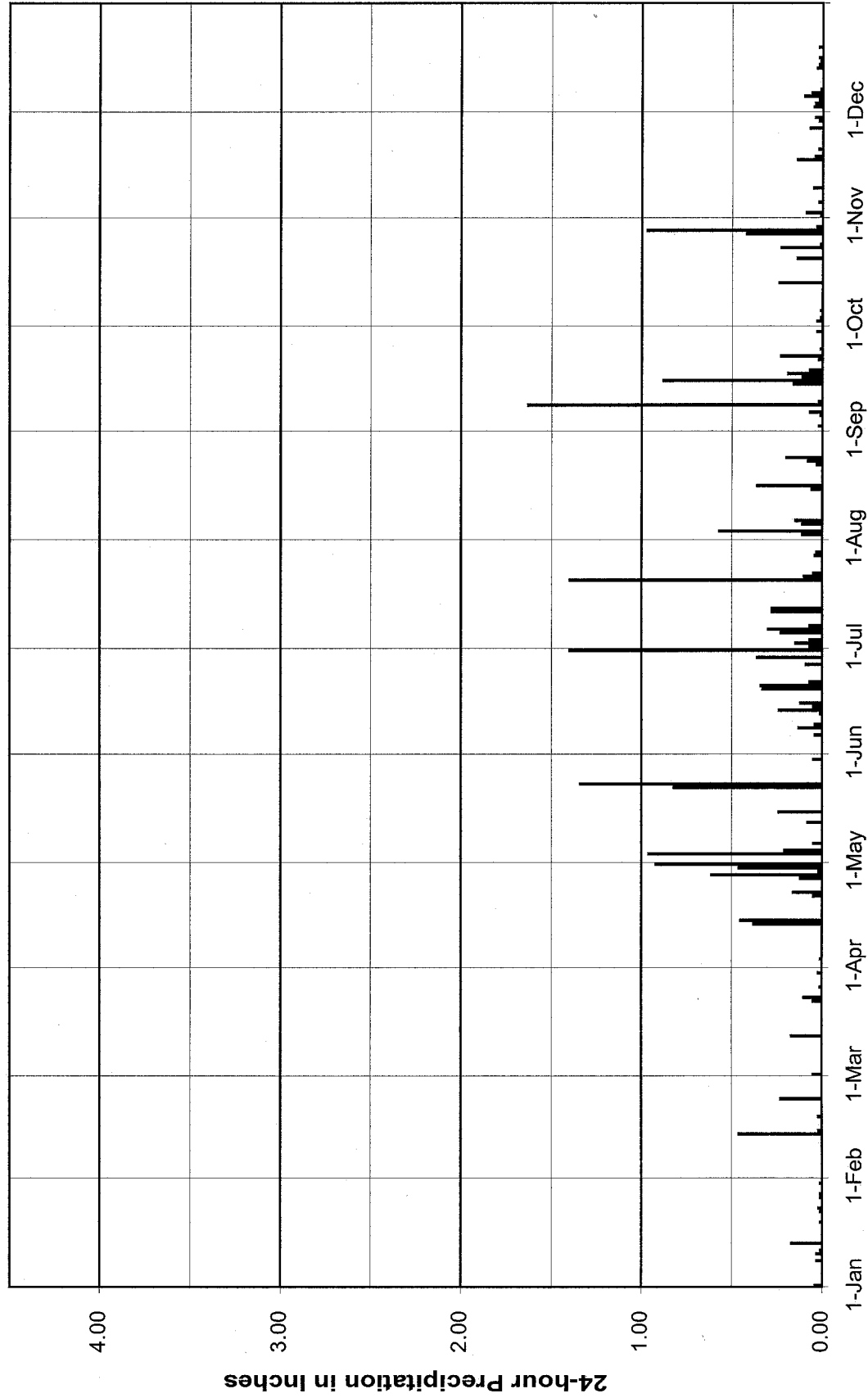
(4). The average train traffic per 24-hour period on this route is ____ freight trains at a timetable speed of ____ MPH and ____ passenger trains at a timetable speed of ____ MPH and ____ switch engine movements.

Grand Forks Airport Daily Observed Precipitation



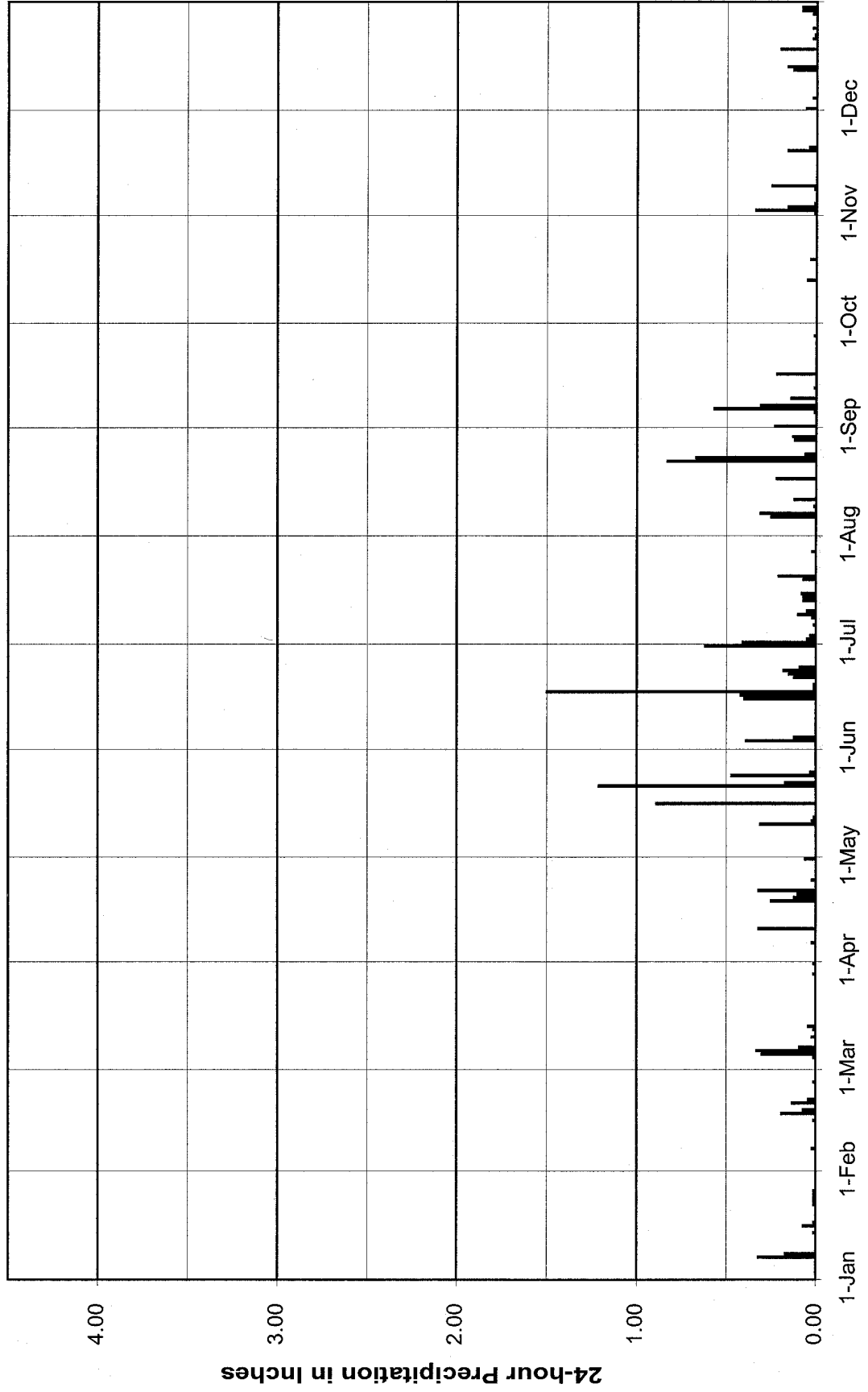
1990

Grand Forks Airport Daily Observed Precipitation



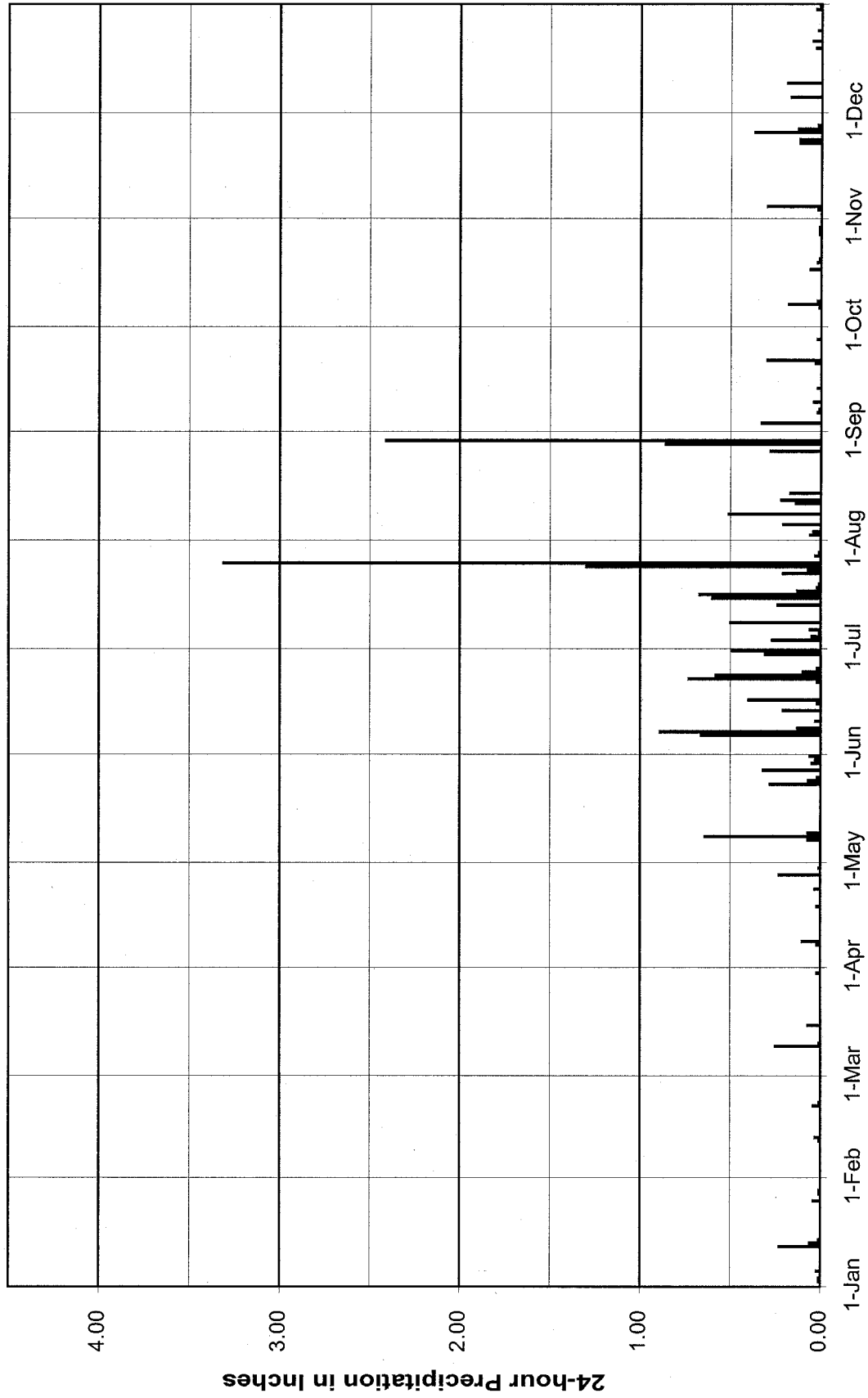
1991

Grand Forks Airport Daily Observed Precipitation



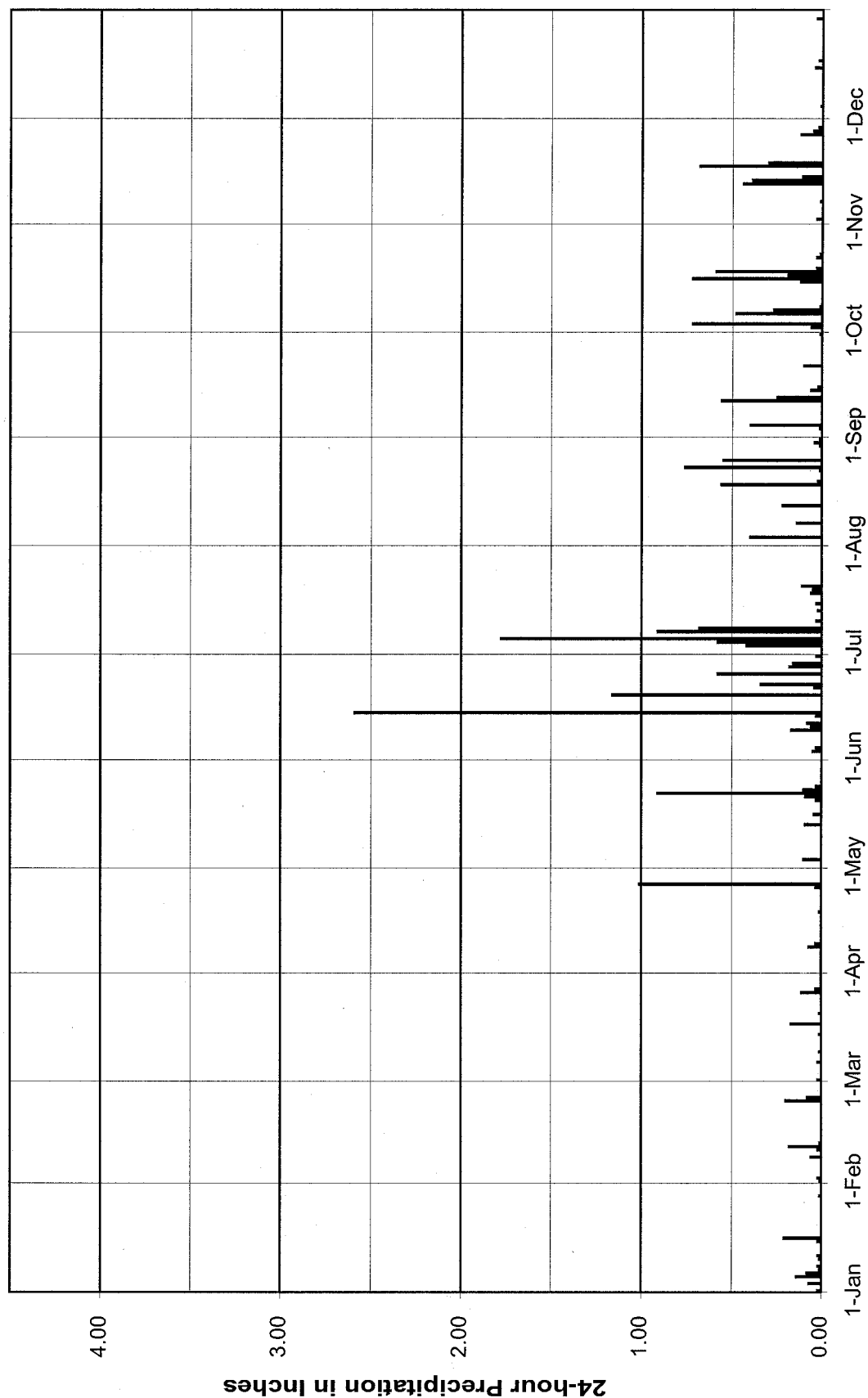
1992

Grand Forks Airport Daily Observed Precipitation



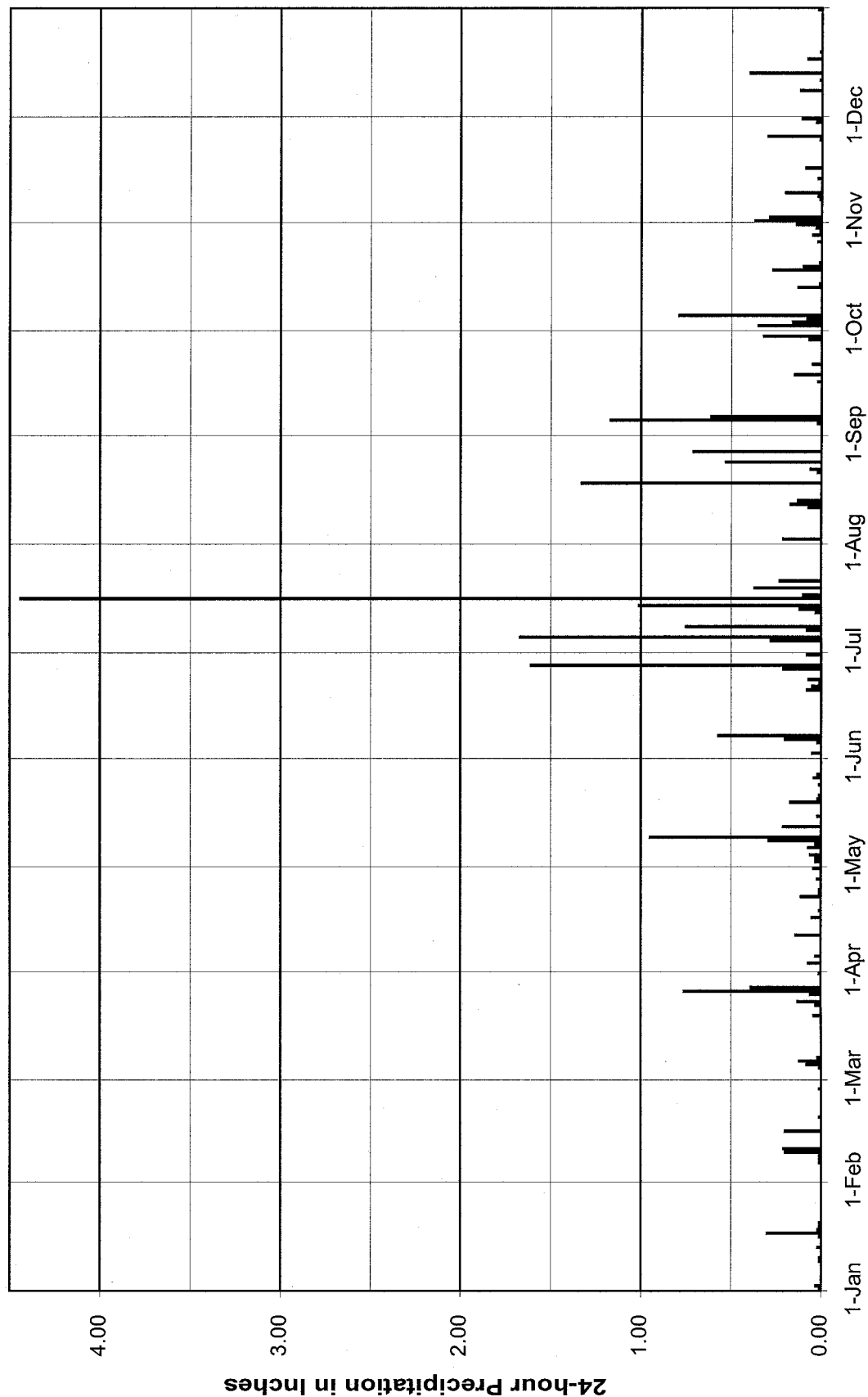
1993

Grand Forks Airport Daily Observed Precipitation



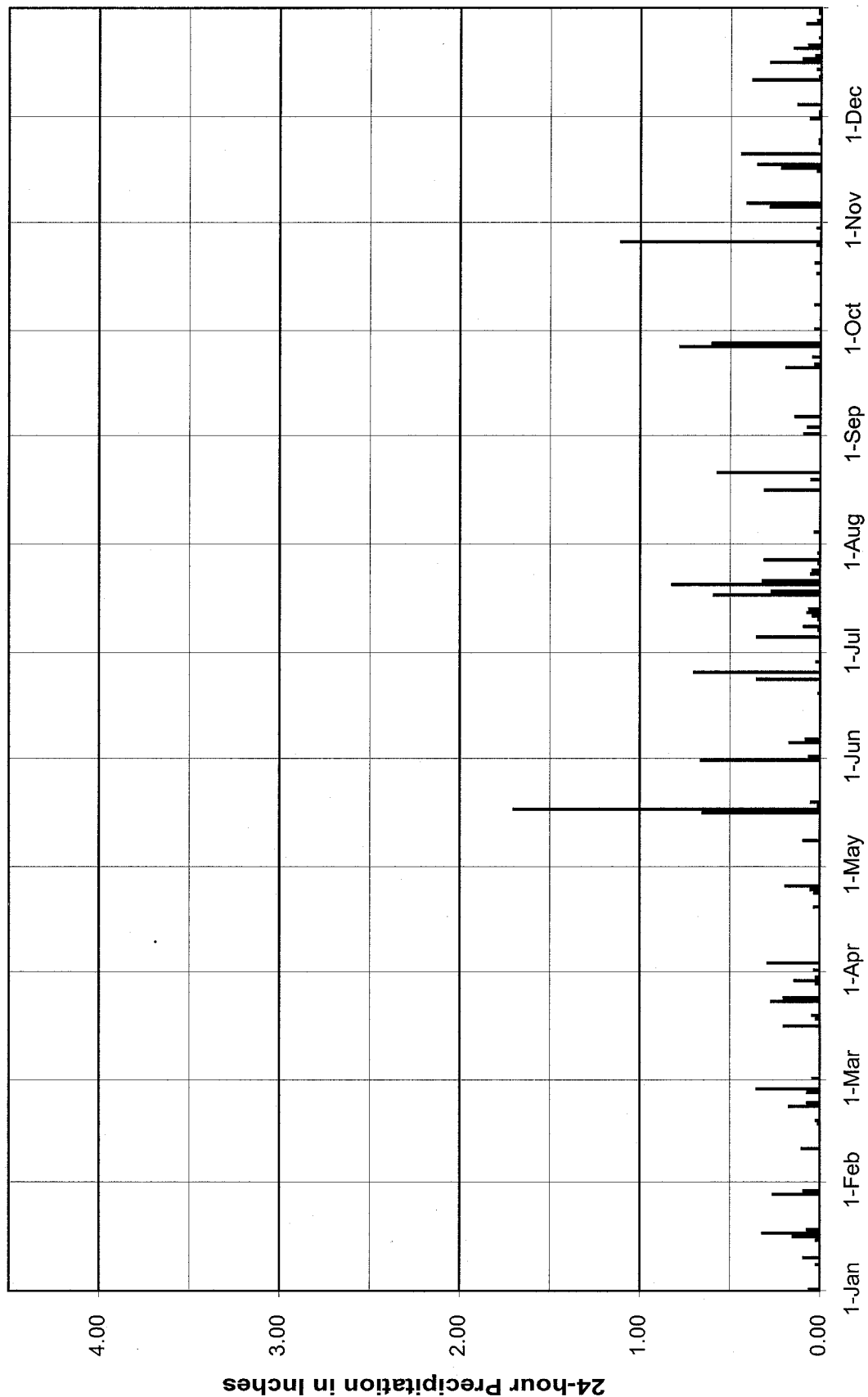
1994

Grand Forks Airport Daily Observed Precipitation



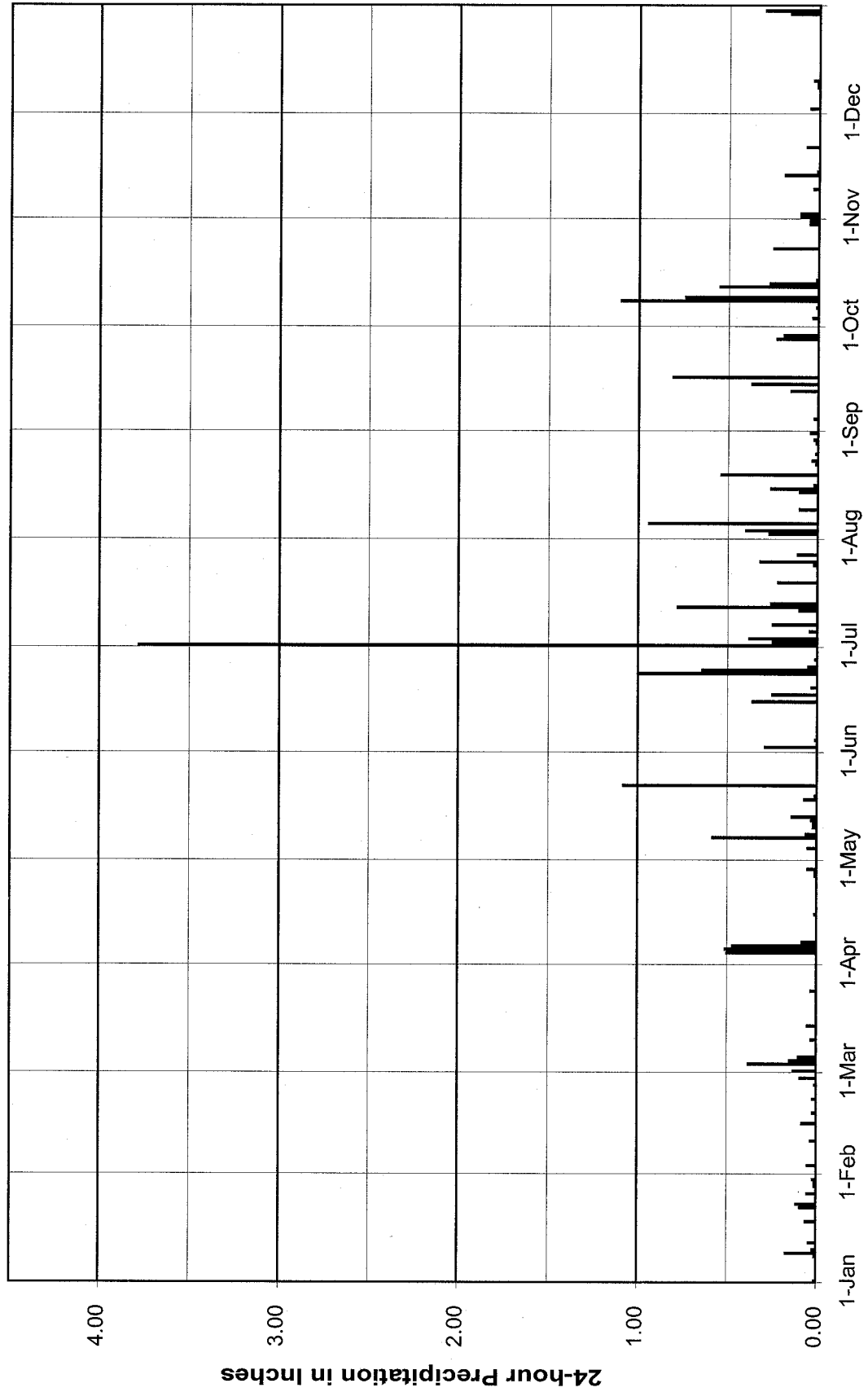
1995

Grand Forks Airport Daily Observed Precipitation



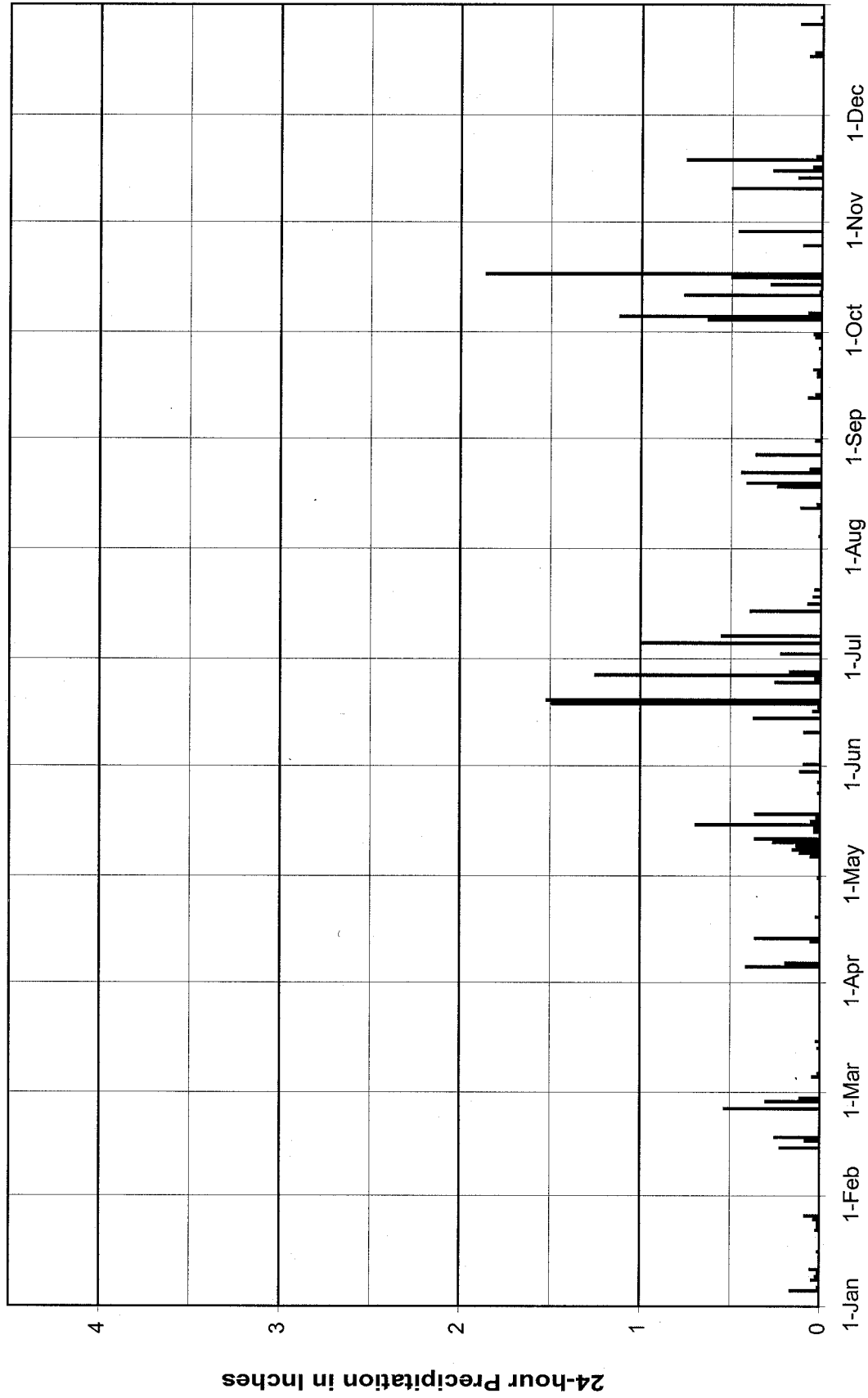
1996

Grand Forks Airport Daily Observed Precipitation



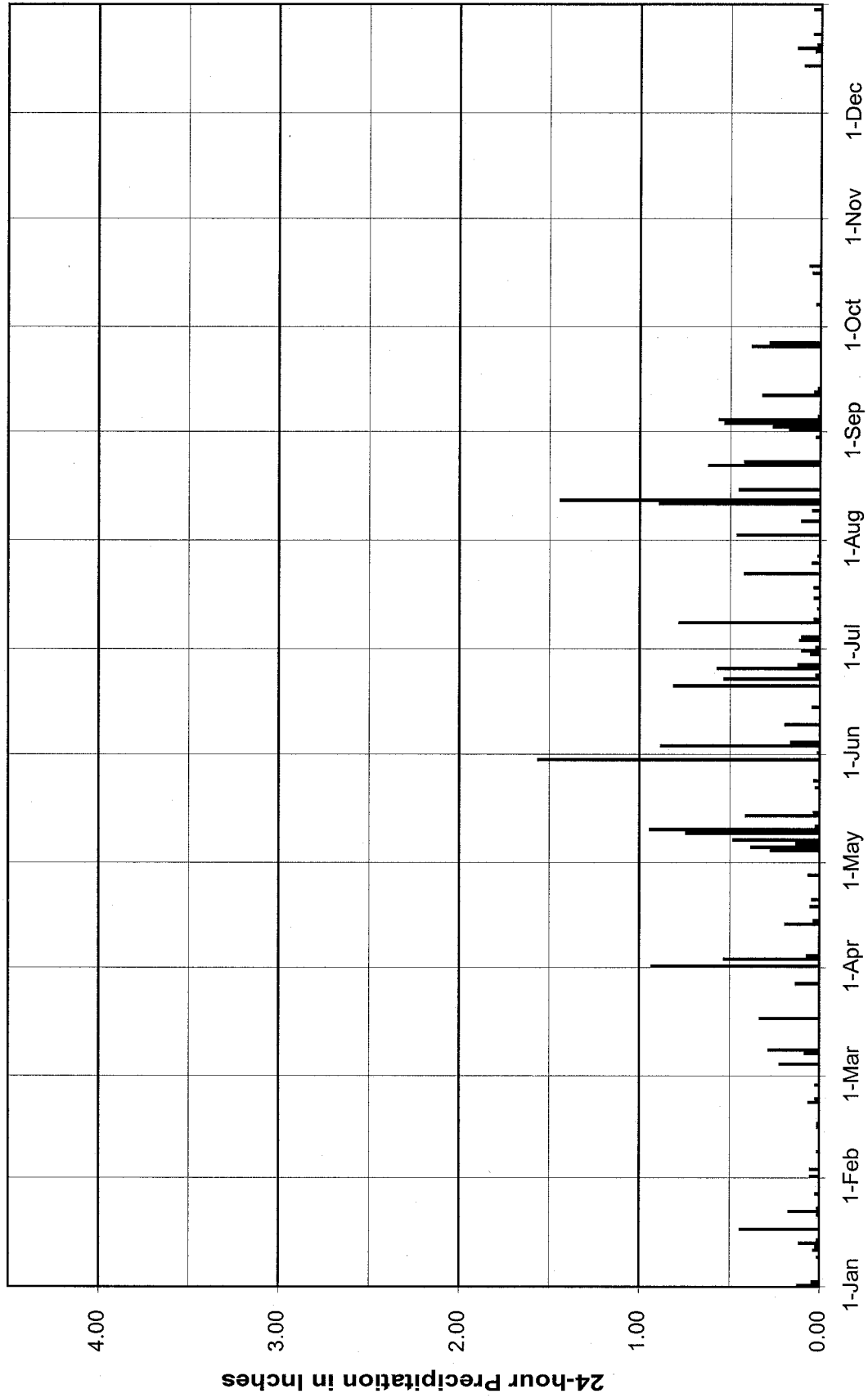
1997

Grand Forks Airport Daily Observed Precipitation



1998

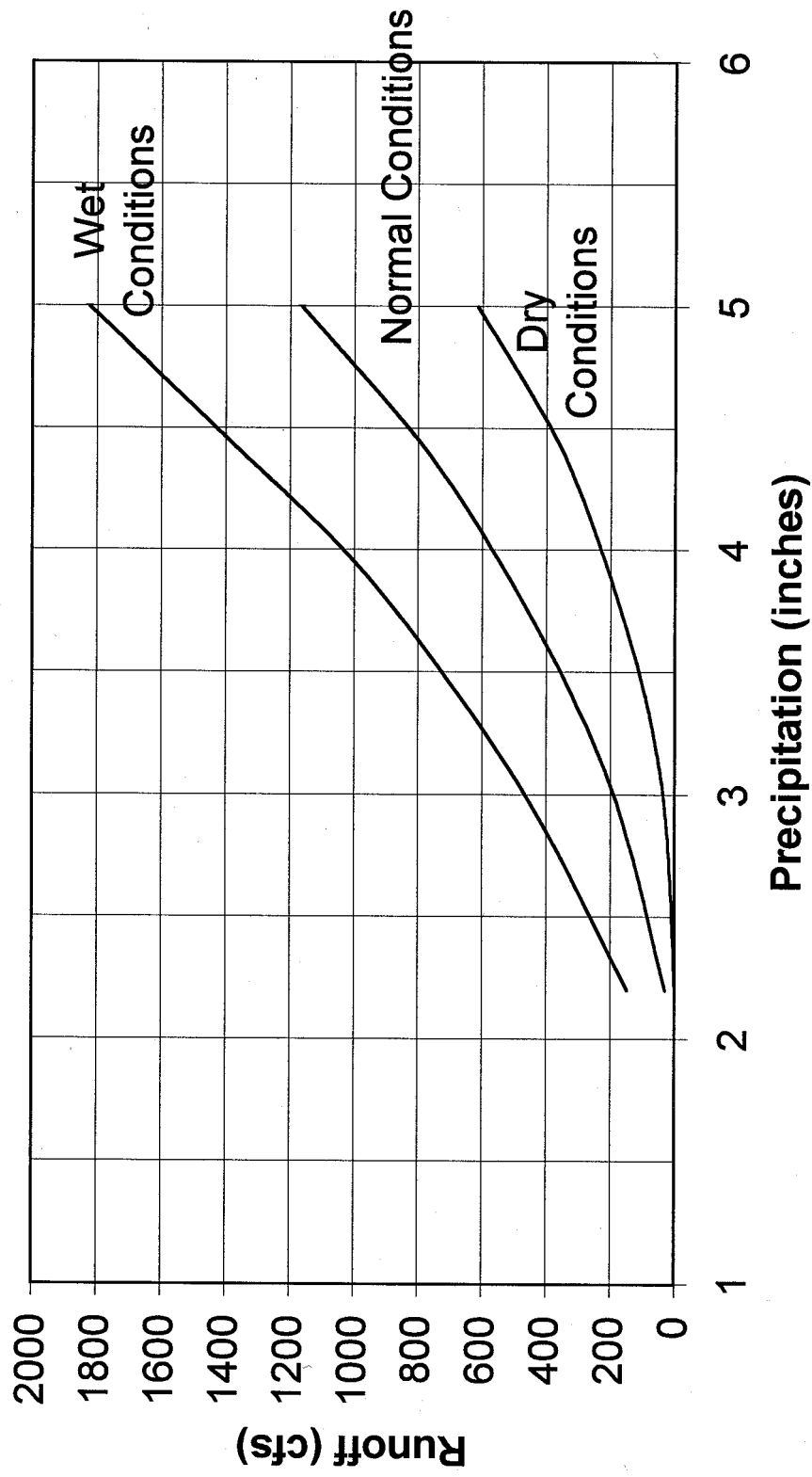
Grand Forks Airport Daily Observed Precipitation



1999

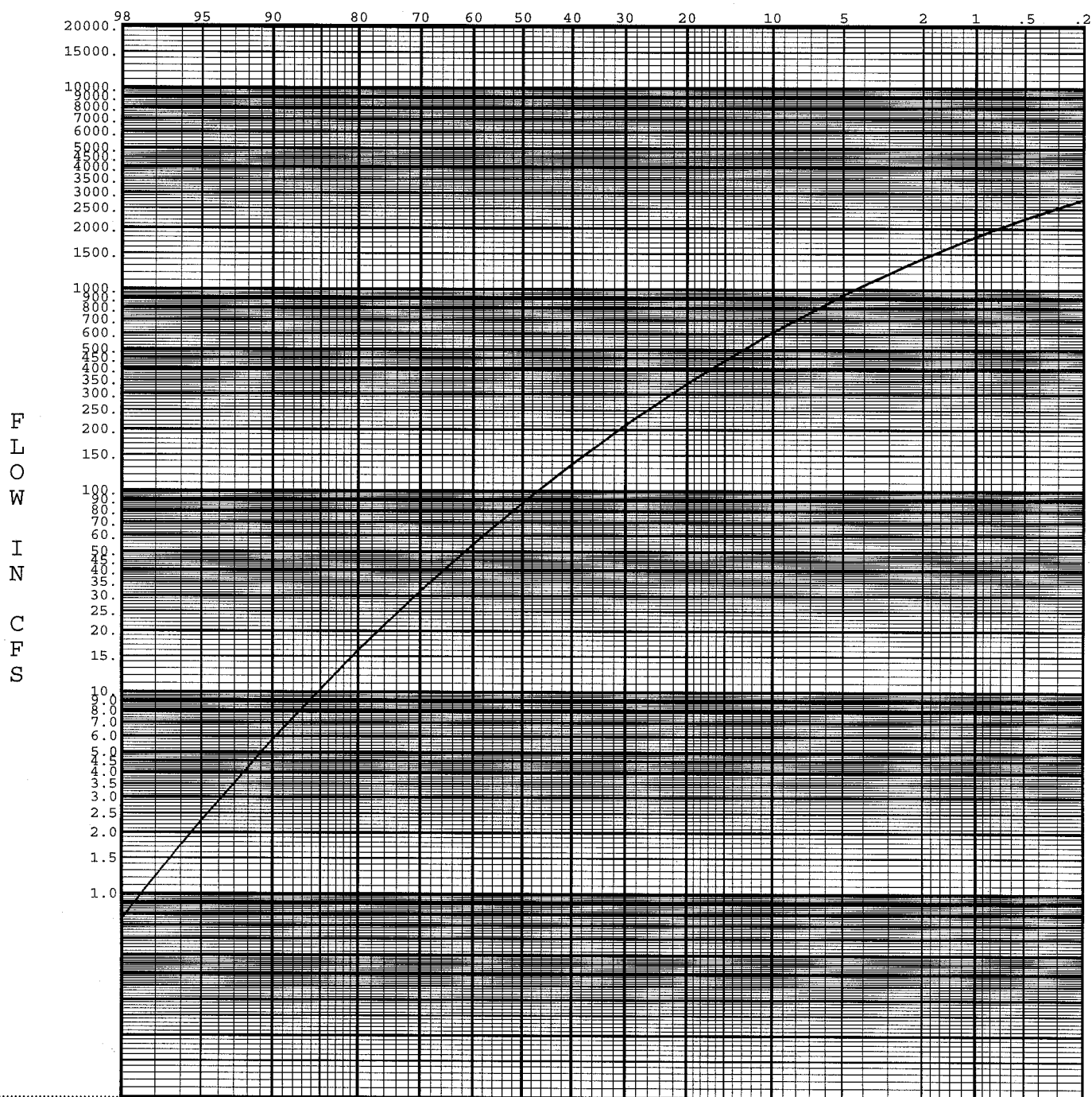
Precipitation - Runoff Relationship

English Coulee Existing NRCS Diversion Channel @ 69th St No



Note: 24-hr hypothetical rain with triangular distribution

EXCEEDANCE FREQUENCY IN PERCENT



— FLOW Frequency (without Exp. Prob.)
 - - - Median Plotting Positions

FREQUENCY STATISTICS

LOG TRANSFORM OF FLOW, CFS

NUMBER OF EVENTS

MEAN	1.8388	HISTORIC EVENTS	0
STANDARD DEV	.8067	HIGH OUTLIERS	0
SKEW	.0000	LOW OUTLIERS	0
REGIONAL SKEW	.0000	ZERO OR MISSING	0
ADOPTED SKEW	-.7563	SYSTEMATIC EVENTS	25

English Coulee NRCS Diversion
 Channel at 69th St No
 Existing Conditions

Peak Discharge Frequency Curve
 Synthetic Statistics

SECTION 01000

GENERAL

01/01

1 GENERAL

1.1 ORGANIZATION OF SPECIFICATIONS

The specifications which govern the materials and equipment to be furnished and the work to be performed under this contract are listed in the Table of Contents. No attempt has been made in the specifications to segregate work to be performed by any trade, craft, or subcontractor. Any segregation between the trades or crafts shall be solely a matter for agreement between the Contractor, Contractor's employees, and subcontractors.

1.2 REFERENCES

Reference to the standards, specifications, or codes of any technical society, organization, or association, or local, state, or Federal authority shall mean the specific edition or revision listed.

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-08 Statements

Designated Landfill; GA

The Contractor shall select the locally operated landfill as described in PARAGRAPH: DISPOSAL OF DEBRIS AND WASTE.

Dewatering plan; FIO.

The submittal requirements are described in PARAGRAPH: DEWATERING OPERATIONS.

Shoring plan; FIO.

The submittal requirements are described in PARAGRAPH: SHORING.

1.4 MEASUREMENT AND PAYMENT

The Contractor shall be responsible for the work of this section, without any direct compensation being made other than the payment received for contract line items on the bidding schedule.

2 PRODUCTS

2.1 PRE-BID SOIL TEST PITS

The Corps of Engineers will conduct a series of test pits along the diversion alignment during the solicitation period. The test pits will give potential bidders the opportunity to witness first hand the difficulty associated with excavation and placement of the foundation soils.

2.2 APPROVAL OF MATERIALS OR ALTERNATES

Requests for approval of materials and products, or substitutes thereof, will not be considered prior to award of the contract.

2.3 WARRANTIES

Any items that are submitted for review or approval of the Contracting officer should include a copy of the manufacturer's standard warranty if one is available.

3 EXECUTION

3.1 GROUNDS AND ROADWAYS

3.1.1 Availability of Grounds

The boundary limits of the grounds made available for the Contractor's use during the life of the contract are shown on the drawings. Any additional rights-of-way or grounds desired by the Contractor shall be obtained by the Contractor at its own expense, and copies of agreements for the use of such rights-of-way shall be furnished to the Contracting Officer before entering thereon. Such agreements shall clearly relieve the Government of any responsibility for damages resulting from the use of the grounds.

3.1.2 Drainage Facilities

Insofar as natural drainage from protected areas and agricultural fields is obstructed by contract operations, it shall be the Contractor's responsibility to make adequate provision for accommodating such drainage in a satisfactory manner during the life of this contract, either by temporary means or by use of the permanent construction and operation of the permanent facilities.

3.1.3 Roadways

3.1.3.1 Traffic hazards

When continuous haul operations or other conditions created by the Contractor's operations result in interference or hazard to traffic on streets and highways, beyond that of ordinary public usage, the Contractor shall erect warning signs and provide flagging services as necessary to safeguard the public as required in SECTION 01500: TEMPORARY CONSTRUCTION FACILITIES.

3.1.3.2 Haul routes

The Contractor shall be responsible for securing all permits required along haul routes. The Contractor shall be the sole permittee and shall be

responsible for meeting all obligations of the permits. A copy of each permit shall be submitted to the Contracting Officer. The Contractor, as between the Government and the Contractor, has sole responsibility for damage or deterioration of the Contractor's haul routes. Dust control shall be provided as stated in SECTION 01410: ENVIRONMENTAL PROTECTION.

3.1.3.3 Road Closures

The Contractor shall be responsible for coordinating road closures and detours with the appropriate jurisdictions.

3.1.4 Work on Railroad ROW

When work activity is under of or within 25 feet from centerline of railroad tracks, the Contractor shall notify Burlington Northern and Santa Fe Railway at least 30 days prior to start of work activity to arrange for railroad flagging services in accordance with Insurance and Flagging Requirements located in SECTION 00830: ATTACHMENTS, Attachment 4.

3.2 DISPOSAL OF DEBRIS AND WASTE

The Contractor's attention is directed to SECTION 01410: ENVIRONMENTAL PROTECTION and to the following SECTION 00700: CONTRACT CLAUSES: PERMITS AND RESPONSIBILITIES; PROTECTION OF EXISTING VEGETATION, STRUCTURES, UTILITIES, EQUIPMENT, AND IMPROVEMENTS; OPERATIONS AND STORAGE AREAS; and CLEANING UP. Burning will not be permitted at the project site and debris or waste shall not be left on the site. Disposal of clearing and grubbing debris shall be by the following method:

3.2.1 Disposal in a locally operated sanitary landfill

Contractor shall select the disposal site with the approval of the Contracting Officer. The Contractor shall secure the required permits for disposal and provide copies of the permit to the Contracting Officer.

3.3 EXISTING UTILITIES

3.3.1 Work By Others

Relocation of existing utilities will be the responsibility of the utility companies. This includes moving or lowering such services as jet fuel line, gas line, underground power and communication lines, sanitary sewer, water main, and overhead power lines.

The Contractor shall coordinate construction activities near existing utilities with the utility companies. The Contractor shall coordinate with the utility representatives listed in Attachment A following this SECTION.

3.3.2 Buried Utilities

The approximate locations of known existing buried utilities are shown on the drawings to the extent of available information at the time the drawings were prepared. (In general, no service connections are shown.) Prior to commencing excavation, the Contractor shall accurately locate all such installations. In the event the Contractor damages any existing utility

lines, report thereof shall be made immediately to the Contracting Officer. If the Contracting Officer determines that repairs shall be made by the Contractor, such repairs shall be performed immediately. The costs associated with repairs shall be borne by the Contractor.

3.3.3 North Dakota One Call Excavation Notice System

For contract work performed within the State of North Dakota, the Contractor shall meet the requirements of North Dakota Statutes, Chapter 42-23 "One Call Excavation Notice System." The North Dakota One Call notification center telephone numbers are:

Hotline	800-795-0555
Main Office	701-223-9380

3.4 SCHEDULING

3.4.1 General

It shall be the responsibility of the Contractor to schedule and execute the work, incorporating the necessary requirements set forth in these specifications. The Contractor shall develop and submit a schedule in accordance with SECTION 00800: SPECIAL CONTRACT REQUIREMENTS: SCHEDULES FOR CONSTRUCTION CONTRACTS.

3.4.2 Notification

The Contractor shall inform the Government in writing within 5 days after receipt of notice to proceed and before work begins as to which hours of the day and days of the week work under this contract will be performed. The Contractor shall notify the Government at least 24 hours before work is to be conducted on overtime, in multiple shifts, on weekends, or on Federal Government holidays.

3.4.3 Highway 81

Work on Structure #3 and Highway 81 road raise shall be completed prior to November 1, 2001. See Article 3.6.

3.5 CONSTRUCTION RESTRICTIONS

3.5.1 Blasting

Blasting will not be permitted.

3.5.2 Protection of Trees

Trees to be protected shall be determined and staked by the Contracting Officer. The following measures shall be implemented for tree protection and shall be addressed in the Environmental Protection Plan required under SECTION 01410:

- a. The trees shall be protected from wounds to the bark and foliage.
- b. The critical root zone shall be protected from compaction and grading.
- c. Changes in temporary site drainage and ponding shall be minimized to the extent possible that it effects the protected trees.

The critical root zone of trees designated to be protected shall be surrounded by a high visibility fence 4 feet in height, supplied and erected by the Contractor. The critical root zone shall be defined by an area extending 1.5 feet radius from each tree for each inch of Diameter at Breast Height (DBH). The fence shall be securely erected and installed prior to any movement through the project site by construction vehicles or equipment, and remain in place until construction and clean-up are completed. The critical root zone shall remain free of all construction activities including trenching, staging, stockpiling and storage of materials. Vehicles and equipment shall not drive or park within the critical root zone. Variation to the critical root zone size or configuration will only be permitted where it is absolutely necessary for construction of the project, and requires approval of the Contracting Officer. Short duration alterations of the critical root zone involving wood chips and limited equipment travel shall be submitted in writing for approval.

The Contractor shall not operate equipment in vegetated areas outside the work limits.

3.5.2.1 Restoration of Damaged Trees

Any existing tree designated to be protected that is damaged by the Contractor's operations shall be replaced. Trees will be considered damaged if the critical root zone in cohesive soils is compacted, if there are significant wounds that could contribute to rot, or if distress (evident by reduced growth or other observations of distress documented by a forester) is observed prior to closing the contract. Trees shall be replaced in kind on a caliper inch per caliper inch basis (DBH) (i.e. one 6-inch red oak shall be replaced with two 3-inch red oaks, three 2-inch red oaks, or six 1-inch red oaks). Replacement trees shall be planted and guaranteed with the Contractor's standard warranty. Replacement tree size and location will be determined and staked by the Contracting Officer. Repair by pruning, aeration, soil conditioning, or other recommendation from a qualified forester will be considered as substitution for replacement by the Contracting Officer.

3.5.3 English Coulee

Flows through Legal Drain No. 9 are not to be obstructed during construction operations.

3.6 OTHER CONTRACTS

The Contractor shall coordinate with other contractors in the performance of the work and schedule such work to provide for a minimum of delays and interferences. Coordination shall be through the Contracting Officer. Work listed below is currently required under separate contract or is scheduled to be awarded as a separate contract prior to completion of work under this contract. These contracts will be considered in the application of SECTION 00700: CONTRACT CLAUSE: OTHER CONTRACTS.

3.6.1 List other contracts

North Dakota Department of Transportation - NDDOT upgrade of Highway 81 in 2002.

3.7 SHORING

3.7.1 General

At locations where shoring is not specifically required by the contract documents to safeguard adjacent structures, the Contractor may at its own option employ shoring for protecting work areas within excavations in lieu of performing excavation to safe and stable side slopes. The Contractor shall construct all shoring required in performing the excavations. Shoring shall be constructed in accordance with the safety requirements of EM 385-1-1.

3.7.2 Responsibility

The Contractor shall be responsible for design and maintenance of all shoring which the Contractor proposes to install. Shoring plan and design computations for all shoring used shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES at least 30 days prior to installation.

3.7.3 Removal

Unless otherwise authorized, all sheeting and bracing shall be removed when backfill is completed.

3.8 DEWATERING OPERATIONS

3.8.1 Scope

The Contractor shall design, furnish, install and operate dewatering systems in the execution of the contract work. The work involves the drawdown of water table and construction of temporary barriers (small cofferdams, earth dikes, sheeting, or other satisfactory types of barriers) to protect against the prevailing river/coulee stages and to permit, where specified or shown, placement of concrete and fill in the dry.

3.8.2 Payment

No separate payment will be made for dewatering on this project and compensation for all dewatering operations will be included in the respective contract items to which the work pertains.

3.8.3 Requirements

Control of groundwater shall be accomplished in a manner that will provide suitable working conditions for construction, preserve the strength of the foundation soils, will not cause instability of excavations, and will not result in damage to existing structures. Suitable working conditions for construction will provide a dry or moist subgrade free of standing, percolating, or running water during placement and curing of concrete, and placement and compaction of backfill. Where necessary to these purposes, the water level shall be lowered in advance of excavation utilizing wells, wellpoints, or similar methods. For structure foundations, the water level (as measured in piezometers) shall be maintained a minimum of 2 feet below the prevailing excavation level.

3.8.3.1 Design

The responsibility for the design of adequate dewatering protection, including shoring, pumping, and other dewatering facilities, shall rest with the Contractor. The design of the protection shall be in accordance with sound engineering practice, based on generally accepted methods and load assumptions as approved. Barriers constructed in the river/coulee channel shall be capable of protecting against a reasonable rate of flow based on normal weather conditions. The Contractor shall limit exposure of the work to damage from high river/coulee channel flows by minimizing the length of new channel construction exposed to flows that exceed the dewatering protection capacity.

3.8.3.2 Regulations

Compliance with all regulations shall be incidental to the dewatering work. Disposal of water shall be in accordance with SECTION 01410: ENVIRONMENTAL PROTECTION and all applicable regulations. Well abandonment shall seal aquifers and confining layers in compliance with environmental regulations and permits.

3.8.3.3 Operation

Upon installation and commencement of dewatering operations, the system shall be operated continuously (24 hours/day, 7 days/week) until the structure and backfill are completed to the groundwater elevation. The Contractor shall be responsible for maintaining the system.

3.8.3.4 Removal

Upon completion of the work, well casing and screens shall be withdrawn, and all equipment shall be removed (including related temporary cofferdams, shoring, etc.)

3.8.4 Geologic and Hydrologic Information

Ground water elevations shown on the boring logs are those encountered at the time the borings were taken. Because groundwater elevations are dependent upon hydrologic conditions, variations in the water table should be expected. For work near the Red River of the North, refer to the hydrographs included with the contract drawings. For local precipitation data and English Coulee flow frequencies, refer to SECTION 00830: ATTACHMENTS, ATTACHMENT 5. It shall be the Contractors responsibility to perform the necessary dewatering operations irrespective of the water elevations at the time of the work. However, nothing in this clause prohibits the Contractor from receiving a time extension under the Default clause, the Time Extensions for Unusually Severe Weather clause, or any other clause in this contract.

3.8.5 Specific Requirements for Wells

3.8.5.1 Screens

Wells and wellpoints shall be installed with suitable screens and filters so that continuous pumping of fines does not occur. Pumps shall discharge into a settling tank to check for movement of sand. Wells shall be sealed in accordance with State Health Department requirements.

3.8.5.2 Setback

The following criteria shall be followed to the maximum extent possible. Where permanent site features restrict placement of dewatering devices, the Contracting Officer will allow a variance. Wellpoints shall be located a minimum horizontal distance away from structures (existing and proposed) equal to the depth of penetration below foundation elevation. Wells larger than 3 inches diameter shall be located a minimum horizontal distance away from structures equal to the depth of penetration below foundation elevation plus half the depth of penetration above foundation elevation.

3.8.5.3 Roads and Levees

Wells larger than 3 inches diameter shall not be jetted through roadway and levee embankments. Wells larger than 3 inches diameter located on the up gradient side of levees, dikes, dams or floodwalls shall be screened without a gravel filter pack. These wells shall be abandoned by plugging the hole with a cement-bentonite grout. The screens shall include a loose end cap to allow removal of screen and casing without hole collapse.

3.8.6 Dewatering Plan

At least 15 calendar days prior to commencing work on the installation or construction of dewatering protection, the Contractor shall submit for review by the Contracting Officer prints in triplicate showing plans and details of the type of construction, including shoring proposed for installation at each location. The design shall be in accordance with sound engineering practice as approved. This submittal data shall include computations covering the analysis and design layout, proposed methods of protection of construction work that would be subject to exposure to channel flows exceeding the dewatering protection capacity, type and spacing of dewatering devices, number and size of pumps and other equipment, together with a description of the installation and operating procedures, including relationship to the construction operations. The plan shall be reviewed and signed by a Registered Professional Engineer. The plan shall include the following items:

1. layout (including the relationship to site improvements and construction operations)
2. type, sizes, depth and spacing of dewatering devices
3. number and capacity of pumps
4. design assumptions, analysis methods, and calculations
 - 4A. justification for pump capacity
 - 4B. justification for slot size on screens
 - 4C. justification for screen intake area
 - 4D. justification for filter pack gradation
5. description of installation equipment
6. description of operating procedures
7. description of discharge point (weirs, sedimentation basin, etc.)
8. type and location of monitoring equipment
9. removal and abandonment plans

3.8.7 Liability

Government review of the proposed dewatering system will not relieve the Contractor of full responsibility for the adequacy of the dewatering

operations. The Contractor shall be responsible for dewatering effects on adjacent properties, including but not limited to blockage of easements, erosion or sedimentation of ditches, and encroachment onto private property by flooding from pump outlets and sedimentation basins.

3.8.8 Related Work

Shoring, trench support systems, cofferdams and diversion structures shall be coordinated with the dewatering effort to provide safe and reliable conditions.

3.8.9 Surface Water Management During Construction

English Coulee Diversion and Red River Flooding: The English Coulee Diversion Channel and Red River of the North are prone to experience extremely high flood stages of relatively long duration. The Red River may inundate the lower reach of the English Coulee Diversion Channel, submerging the uppermost drop structure up to 15 feet during the 100 year event. The Contractor shall be responsible for monitoring local weather conditions and flow conditions in order to anticipate flooding conditions prior to their occurrence. The Contractor shall keep the Contracting Officer informed regarding all flooding conditions on the English Coulee Diversion Channel.

The Contractor shall be responsible for construction sequencing involving English Coulee Diversion Channel flows and construction of structural features such as drop structures and culverts. It is advisable to consider winter construction of the drop structures as well as construction of the drop structures prior to connection of the diversion extension to the existing English Coulee Diversion Channel

The Contractor should satisfy itself before submitting its bid as to hazards that arise from weather conditions and flooding. Precipitation data, English Coulee Diversion Channel flow-frequency curve, and Red River of the North rating curves and hydrographs are included in the contract documents as attachments in SECTION 00830: ATTACHMENTS or in the contract drawings. These references include:

1. Grand Forks Airport Precipitation (Attachment 5)
2. Precipitation-Runoff Relationship for Existing English Coulee Diversion Channel (Attachment 5)
3. Existing English Coulee Diversion Channel Discharge Frequency Curve (Attachment 5)
4. Red River of the North Elevation-Discharge Rating Curve (Contract Drawings)
5. Mean Daily Flows for Red River of the North, Water Years 1978 and 1979 and 1991 through 1998 (Contract Drawings)
6. Red River of the North Monthly Flow Duration Curves (Contract Drawings)

3.9 SEWAGE WATER DISPOSAL

The Contractor's methods for disposal of sanitary sewage shall meet applicable local, state, and federal requirements.

3.10 TEMPORARY ACCESS

The Contractor shall provide temporary access during roadway and levee construction to the Pet Hospital and the Granary. At no time shall access to these premises be denied. Temporary access shall also be provided to farm fields that lack secondary access roads.

3.11 SURVEYS

3.11.1 Field Layout

The Contractor shall layout the work from the Government established bench marks in accordance with SECTION 00800: CONTRACT CLAUSE LAYOUT OF WORK. The construction of each feature of work shall follow the alignments as indicated on the drawings. The Contractor shall have in place, at least 7 calendar days prior to commencing construction operations, sufficient stakes and markings to enable the Contracting Officer to observe the field layout of the alignment and limits of each feature of work. For each feature of work, these stakes shall define areal limits such that the Contracting Officer can easily determine, without additional surveys, if alignment and/or limit adjustments need to be made. For embankments, levees, and similar work, these stakes shall define centerline, stationing, outermost fill/cut limits, and work limits. For structures and similar work, the corners shall be staked. General site work shall be staked to define staging areas, storage areas, and other area limits as directed. The Contracting Officer may waive these requirements for certain areas. The layout shall be sufficient for the Contracting Officer to mark trees, vegetation and other features to be left undisturbed. No work shall take place without approval of field layout by the Contracting Officer.

3.11.1.1 Alignment Changes

The Government reserves the right to make changes in the alignment of any feature of work as may be found necessary during the course of the contract. If it becomes necessary, through no fault of the Contractor, equitable adjustment for completed work will be made. No alignment changes or abandonment shall take place without prior written notice from the contracting Officer.

3.11.2 Quantity Surveys

The Contractor shall perform quantity and tolerance verification surveys for all features of work in accordance with SECTION 00800: SPECIAL CONTRACT REQUIREMENTS: QUANTITY SURVEYS--ALTERNATE I. Unless changed by the Contracting Officer, the Contractor shall provide cross sections at 100 foot intervals to verify the required section. Areas where payment for material is specified by volume shall be surveyed by the Contractor, prior to commencement of construction of each feature and upon completion of each feature, in enough detail to accurately determine quantities and verify the required section. The Contractor shall also provide a copy of the survey notes and cross sections to the Contracting Officer within 10 days after completion of the survey.

3.11.3 Section and Quarter Monuments

The Contractor will be responsible for care, maintenance, rehabilitation and restoration of any monument(s) occupied or disturbed during the construction

of diversion channels, levees and roadways for the English Coulee Diversion Project. The Contractor will be required to comply with the Land Surveying Standards set forth by Grand Forks County and the State of North Dakota. Monuments that are damaged or removed shall be replaced at no cost to the Government.

ATTACHMENT A

Utility Contact Summary

1/10/2001

Utility Company Name	Utility Affected	Address	Contact Person	Phone Number
Xcel Energy (formerly NSP) Gas	Underground Gas	PO Box 13038 Grand Forks, ND 58208-3038	Doug Foy	701-795-5234
Xcel Energy (formerly NSP) Electric	Overhead Power -Transmission Lines	2302 Great Northern Drive Fargo, ND 58101	Brad Sylliaasen	701-241-8626
NoDAK Power	Underground & Overhead Power – Service Lines	PO Box 13000 Grand Forks, ND 58208	John Rodgers	701-746-4461
MnKOTA Power	Overhead Power – Transmission Lines	PO Box 13200 Grand Forks, ND 58208-3200	George Freeman	701-795-4334 701-795-4333 (fax)
UND – Telecommunications	UND Fiber Optic	PO Box 7141 Grand Forks, ND 58208	Larry Fisk	701-777-3708
US West - Communications	Fiber Optic, Toll Cable, Underground Telephone	PO Box 13160 Grand Forks, ND 58208-3160	Greg Syverson	701-241-3600
BNSF Railroad	Railroads	1796 Demers Avenue Grand Forks, ND 58203	Jerry Litzinger Eric Froberg, Bridge Engr.	701-795-1298 913-551-4163 Kansas City, MO
Grand Forks County Road Authority	County and Township Roads	PO Box 5682 Grand Forks, ND 58206	Richard Onstad	701-780-8248
Grand Forks County Water Resources	Public Drainage Systems	Box 478 Larimore, ND 58251	Ray Trosen	701-343-2547
Doss Aviation	Jet Fuel Pipeline	4128 A 27 th Ave. S. Grand Forks, ND 58201	Jim Pollum	701-795-5679 701-795-5679 (fax)
Defense Energy Support Center	Jet Fuel Pipeline	8725 John J Kingman Rd Fort Belvoir, VA 22060-6222	Fred Ma Bill Pulley Terri Regin - NFESC	703-767-8294 703-767-8331 (fax) 701-772-9421 202-433-5196
City of Grand Forks Engineering	Sanitary Sewer Forcemain and Watermain	PO Box 5200 Grand Forks, ND 58206	Mark Walker	701-746-2648 701-746-2514 (fax)
Brenna Township	Brenna Township Roads and Bridges	Grand Forks, ND	Keith Berg	701-772-7789
Rye Township	Rye Township Roads and Bridges	1751 21 st Avenue NE Grand Forks, ND 58203	Terrance J. Stromsodt	701-746-7212
North Dakota Department of Transportation	State Highways	Grand Forks District Office PO Box 13077 Grand Forks, ND 58208-3077	Nick Ludowese, Asst. District Engineer	701-787-6500
Great River Energy	Overhead Power	PO Box 800 Elk River, MN 55330-0800	Gary Ostrom	763-441-3121
Western Area Power Association	Overhead Power	Bismarck, ND	Jerry Paulson	701-221-4501

SECTION 01270

MEASUREMENT AND PAYMENT

02/01

1 GENERAL

1.1 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Quantity Surveys; FIO.

The Quantity Surveys are described in SECTION 01000: GENERAL: SURVEYS.

1.2 LUMP SUM PAYMENT ITEMS

Payment items for the work of this contract for which contract lump sum payments will be made are listed in the BIDDING SCHEDULE and described below. All costs for items of work, which are not specifically mentioned to be included in a particular lump sum or unit price payment item, shall be included in the listed lump sum item most closely associated with the work involved. The lump sum price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for which separate payment is not otherwise provided.

1.2.1 Demolition

1.2.1.1 Payment

Payment will be made for costs associated with operations necessary for demolition and removal of existing structures. Items to be demolished includes, but is not limited to drop structures, bridges, highway box culvert, homes, businesses, farm buildings, abandoned water main, fences, and field entrances. Debris shall be taken off site for proper disposal.

1.2.1.2 Unit of Measure

Unit of Measure: Lump Sum.

1.2.2 Structure No. 1-3 Drop Structures

1.2.2.1 Payment

Payment will be made for the costs associated with operations necessary for construction of three drop structures located between Stations 1+90 and 10+05. Work shall include, but is not limited to excavation, installation

of H-piles, backfill, placement of riprap, installation of guardrails, and construction of cofferdam and dewatering as needed.

1.2.2.2 Unit of Measure

Unit of measure: lump sum.

1.2.3 Structure No. 2-Four Cell Box Culvert (Special Design/Build)

1.2.3.1 Payment

Payment will be made for the costs associated with operations necessary for engineering design and construction of the box culvert under gravel Township road -Columbia Road- at Station 16+46. Work shall include, but is not limited to excavation, backfill, placement of riprap, and construction of road embankment and surface.

1.2.3.2 Unit of Measure

Unit of measure: lump sum.

1.2.4 Structure No. 3-Four Cell Skewed Box Culvert

1.2.4.1 Payment

Payment will be made for the costs associated with operations necessary for construction of the box culvert under US Highway 81 at Station 36+38. Work shall include, but is not limited to excavation, backfill to two feet of cover over top of culvert, and placement of riprap.

1.2.4.2 Unit of Measurement

Unit of measure: lump sum.

1.2.5 Structure No. 5-Four Cell Box Culvert

1.2.5.1 Payment

Payment will be made for the costs associated with operations necessary for construction of the box culvert under Interstate 29 at Station 83+05. Work shall include, but is not limited to excavation, backfill to two feet of cover over top of culvert, and placement of riprap.

1.2.5.2 Unit of Measurement

Unit of measure: lump sum.

1.2.6 Structure No. 7-Four Cell Box Culvert (Special Design/Build)

1.2.6.1 Payment

Payment will be made for the costs associated with operations necessary for engineering design and construction of the box culvert under gravel Township road at Station 175+52. Work shall include, but is not limited to excavation, backfill to two feet of cover over top of culvert, and placement of riprap.

1.2.6.2 Unit of Measurement

Unit of measure: lump sum.

1.2.7 Structure No. 9-Four Cell box Culvert (Special Design/Build)

1.2.7.1 Payment

Payment will be made for the costs associated with operations necessary for engineering design and construction of the box culvert under gravel access road at Station 198+92. Work shall include, but is not limited to excavation, backfill to two feet of cover over top of culvert, and placement of riprap.

1.2.7.2 Unit of Measurement

Unit of measure: lump sum.

1.2.8 Structure No. 10-Four Cell Box Culvert

1.2.8.1 Payment

Payment will be made for the costs associated with operations necessary for construction of the box culvert under Highway 2 at Station 279+84. Work shall include, but is not limited to excavation, backfill, placement of riprap, and construction of temporary cross-overs, road embankment and concrete pavement.

1.2.8.2 Unit of Measurement

Unit of measure: lump sum.

1.2.9 Structure No. 11-Four Cell Box Culvert

1.2.9.1 Payment

Payment will be made for the costs associated with operations necessary for construction of the box culvert under County Road 4 (Demers Avenue) at Station 332+72. Work shall include, but is not limited to excavation, backfill, placement of riprap, and construction of temporary road bypass, road embankment and asphalt pavement.

1.2.9.2 Unit of Measurement

Unit of measure: lump sum.

1.2.10 Structure No. 12-Four Cell Box Culvert (Special Design/Build)

1.2.10.1 Payment

Payment will be made for the costs associated with operations necessary for engineering design and construction of the box culvert and weir under gravel Township road at Station 385+48. Work shall include, but is not limited to excavation, backfill, placement of riprap, installation of stoplogs, and construction of road embankment and aggregate surface.

1.2.10.2 Unit of Measurement

Unit of measure: lump sum.

1.2.11 Structure No. 13-Diversion Structure

1.2.11.1 Payment

Payment will be made for the costs associated with operations necessary for construction of the diversion structure near Station 385+90 on Legal Drain No. 9. Work shall include, but is not limited to excavation, backfill, placement of riprap, and installation of stoplogs, vertical lift gates, steel grates and guardrail.

1.2.11.2 Unit of Measurement

Unit of measure: lump sum.

1.2.12 Structure No. 14-Two Cell Box Culvert (Special Design/Build)

1.2.12.1 Payment

Payment will be made for the costs associated with operations necessary for engineering design and construction of the box culvert under gravel road at Station 438+39. Work shall include, but is not limited to excavation, backfill, placement of riprap, and construction of temporary road bypass, road embankment and asphalt pavement.

1.2.12.2 Unit of Measurement

Unit of measure: lump sum.

1.2.13 Structure No. 15-Two Cell Box Culvert (Special Design/Build)

1.2.13.1 Payment

Payment will be made for the costs associated with operations necessary for engineering design and construction of the box culvert under gravel Township road at Station 492+22. Work shall include, but is not limited to excavation, backfill, placement of riprap, and construction of road embankment and surface.

1.2.13.2 Unit of Measurement

Unit of measure: lump sum.

1.2.14 Structure No. 17-Four Cell Box Culvert (Special Design/Build)

1.2.14.1 Payment

Payment will be made for the costs associated with operations necessary for engineering design and construction of the box culvert under gravel road at Station 318+52. Work shall include, but is not limited to excavation, backfill, placement of riprap, and construction of road embankment and aggregate surface.

1.2.14.2 Unit of Measurement

Unit of measure: lump sum.

1.2.15 Existing Structure 4 Cleanout and Seepage Cutoff

1.2.15.1 Payment

Payment will be made for the costs associated with operations necessary for cleaning sediments from existing railroad bridge. Work includes, but is not limited to transitioning diversion channel cross section to existing structure, placement of riprap and installation of geomembrane and asphalt seepage cutoff through ballast layer.

1.2.15.2 Unit of Measurement

Unit of measure: lump sum.

1.2.16 Existing Structure 6 Cleanout

1.2.16.1 Payment

Payment will be made for the costs associated with operations necessary for cleaning sediments and shaping channel bottom at 55th Street bridge. Work includes, but is not limited to transitioning diversion channel cross section and placement of riprap.

1.2.16.2 Unit of Measurement

Unit of measure: lump sum.

1.2.17 Existing Structure 8 Cleanout and Seepage Cutoff

1.2.17.1 Payment

Payment will be made for the costs associated with operations necessary for cleaning sediments and shaping channel bottom at railroad bridge. Work includes, but is not limited to transitioning diversion channel cross section and placement of riprap and installation of geomembrane and asphalt cutoff through ballast layer.

1.2.17.2 Unit of Measurement

Unit of measure: lump sum.

1.2.18 Cleanout Railroad Bridge Near Structure 11

1.2.18.1 Payment

Payment will be made for the costs associated with operations necessary for cleaning sediments and shaping channel bottom at railroad bridge. Work includes, but is not limited to transitioning diversion channel cross section and placement of riprap.

1.2.18.2 Unit of Measurement

Unit of measure: lump sum.

1.2.19 Fencing

1.2.19.1 Payment

Replacement of existing fences will not be measured for payment. Payment will be made for the costs associated with operations necessary for the installation of farm type fences and gates. Work includes, but is not limited to, the installation of fence posts, horizontal brace rails, gates and barbed wire.

1.2.19.2 Unit of Measure

Unit of measure: lump sum.

1.2.20 Clearing and Grubbing

1.2.20.1 Payment

Clearing and grubbing will not be measured for payment. All costs therefore shall be included in the bid item to which the work pertains. Material that can be salvaged shall be stored for later use. Debris shall be properly disposed. No allowances will be made for clearing and grubbing outside the limits of construction unless authorized.

1.2.20.2 Unit of Measurement

Unit of measure: lump sum.

1.2.21 Stripping

1.2.21.1 Payment

Stripping will not be measured for payment. All costs therefore shall be included in the bid item to which the work pertains. Strip vegetation and topsoil along the diversion channel and levee alignments. Topsoil shall be stockpiled for later use. Unsuitable material shall be properly disposed. No allowances will be made for stripping outside the limits of construction unless authorized.

1.2.21.2 Unit of Measurement

Unit of measurement: lump sum.

1.2.22 Topsoil and Seed

1.2.22.1 Payment

The placement of topsoil and seeding on the diversion channel and levee sideslopes will not be measured for payment. All costs therefore shall be included in the bid item to which the work pertains. Work includes, but is not limited to placement of soil amendments, mulch, and care of turf. Restoration of disturbed areas outside of work limits and haul roads is incidental to the price bid. No allowances will be made for topsoil and seeding outside the limits of construction unless authorized. The Contractor shall include compensation for installation and maintenance of erosion and

sediment controls in the most applicable contract line item in the bid schedule.

1.2.22.2 Unit of Measurement

Unit of measure: lump sum.

1.2.23 Interior Drainage

1.2.23.1 Payment

Payment will be made for the costs associated with operations necessary for construction of the interior drainage structures. Work includes, but is not limited to installation of culverts, gatewells, manholes, headwalls, outlet structures, riprap, flap gates, sluice gates and construction of ditches. The work shall also include removal and salvage of existing culverts. Restoration of roads, driveways, fences, and field entrances is incidental to the price bid. No allowances will be made for maintaining drainage from agricultural fields during interruptions in construction.

1.2.23.2 Unit of Measurement

Unit of measure: lump sum.

1.2.24 Road Relocations

Roads to be relocated include:

- Gravel Township Road between Structures No. 2 and No. 4, Granary entrance, and rail spur retaining wall.
- 55th Street between Structures No. 6 and No. 9.

1.2.24.1 Payment

Payment will be made for the costs associated with operations necessary for relocating existing gravel roads to top of levee. Work includes, but is not limited to stripping and stockpiling existing gravel layer, placement and compaction of subgrade fills and placing pavement layers. Work shall also include design and construction of rail spur retaining wall. Submit design to Contracting Officer for approval. Restoration of driveways, driveway culverts, fences, and field entrances are incidental to the price bid.

1.2.24.2 Unit of Measurement

Unit of measure: lump sum.

1.2.25 Road Raises

Roads to be raised include:

- Gravel access road over Structure 9, approximately 2-foot raise.
- Gravel Township road over Structure 7, approximately 2-foot raise.
- US Highway 81 (concrete) over Structure 3, approximately 3-foot raise.
- Interstate 29 (concrete) over Structure 5, approximately 3-foot raise.

- 69th Street (gravel) between Stations 280+50 and 491+60, approximately 1/2 to 1-1/2 foot raise.
- 47th Avenue between Stations 491+60 and 501+95, approximately 1/2 foot raise.

1.2.25.1 Payment

Payment will be made for the costs associated with operations necessary for raising the profile of existing roads over new structures. Work includes, but is not limited to clearing and grubbing, stripping, road embankment, aggregate base, construction of appropriate pavement, grading shoulders, placing topsoil and seeding, and replacement or installation of signage and pavement markings as needed. Work may include construction of temporary road bypasses or cross-overs, bracing for cross-overs, providing temporary access, restoration of driveways, driveway culverts, fences, and field entrances and are incidental to the price bid.

1.2.25.2 Unit of Measurement

Unit of measure: lump sum.

1.3 UNIT PRICE PAYMENT ITEMS

Payment items for the work of this contract on which the contract unit price payments will be made are listed in the BIDDING SCHEDULE and described below. The unit price and payment made for each item listed shall constitute full compensation for furnishing all plant, labor, materials, and equipment, and performing any associated Contractor quality control, environmental protection, meeting safety requirements, tests and reports, and for performing all work required for each of the unit price items.

1.3.1 Common Excavation

1.3.1.1 Payment

Payment will be made for costs associated with excavation for the diversion channel. Disposition of excess excavated material and unsuitable and frozen materials to excess disposal fill zones will be incidental to the price bid for common excavation. Work includes, but is not limited to, placing fill in trucks, placing fills in on-site stockpiles, spreading disposal fills and rough grading of disposal fills. Common excavation does not include excavation for culverts, excavation for structures, excavation for utilities, off-site borrow excavation and any other excavation where measurement and payment is specified elsewhere.

1.3.1.2 Measurement

Common excavation shall be measured for payment by the cubic yard, in the original position, using the average-end-area method based on the original ground lines as determined by the required survey and the lines and grade shown. Topsoil stripped from common excavation zones shall be deducted from the quantity measured for common excavation. Final surveys shall be used for any authorized over-depth excavation. Except for authorized over-depth excavation, materials removed outside the lines and grades shown will not be measured for payment. Material removed outside the lines and grades shown, but within the specified tolerance will not be measured for payment.

Disposal fill will not be measured for payment. All costs therefore shall be included in the bid item to which the work pertains.

1.3.1.3 Unit of Measure

Unit of measure: cubic yard.

1.3.2 Haul Excess Fill to Landfill (Optional)

1.3.2.1 Payment

Payment will be made for the costs associated with hauling excess fill from the excavation of the diversion channel to the City landfill and stockpiling the soil. The costs associated with excavation are covered in Article 1.3.1 Common Excavation.

1.3.2.2 Measurement

Excess fill hauled to the landfill shall be measured for payment by converting weight ticket amounts to cubic yards using a factor of 1.21 tons per cubic yard.

1.3.2.3 Unit of Measure

Unit of measure: cubic yard.

1.3.3 Compacted Fill and Semi-Compacted Fill

1.3.3.1 Payment

Payment will be made for the costs associated with the final placement and compaction of compacted and semi-compacted fill for the construction of the diversion channel sideslopes and levees. Work includes, but is not limited to, spreading and compacting fills, and rough grading.

1.3.3.2 Measurement

Compacted and semi-compacted fill shall be measured for payment by the cubic yard in place using the average-end-area method based on the original ground lines as determined by the required survey data after stripping and lines and grades shown with the following limitations or exceptions:

- (1) Tolerances are provided only for the convenience of the Contractor and no material placed outside of the lines, grades, and sections shown as a result of the permitted tolerances will be measured for payment.
- (2) Material placed above the lines, grades, and sections shown as allowance for shrinkage will not be measured for payment.
- (3) Volumes occupied by structures will not be included in measurement of fill or embankment quantities.

Impervious fill placed in the stockpiles for the closures will be measured and paid for as semi-compacted fill.

1.3.3.3 Unit of Measure

Unit of measure: cubic yard.

2 PRODUCTS (NOT APPLICABLE)

3 EXECUTION (NOT APPLICABLE)

SECTION 01320

PROJECT SCHEDULE

11/00

1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Schedules

Initial Project Schedule; GA. Periodic Updates; GA.

Five copies of the initial project schedule shall be submitted. Two copies of periodic project schedule updates shall be submitted.

SD-14 Samples

Software; FIO.

The Contractor shall furnish the Government copies of the scheduling software if required under paragraph COMPUTER SOFTWARE REQUIREMENTS.

1.2 QUALIFICATIONS

The Contractor shall designate an authorized representative who shall be responsible for the preparation of all required project schedule reports.

2 PRODUCTS

2.1 COMPUTER SOFTWARE REQUIREMENTS

The Contractor shall furnish the Government with the software to be used, unless waived by the Contracting Officer. The Contractor shall assist in installing the software in the Government resident office. The Contractor shall provide the software complete, including documentation and updates used in the Contractor's system. The software shall remain the property of the Contractor, but shall be in the possession of and for the exclusive use by the Government during the contract period. The Government shall have rights to install the software on 3 computers (resident office, area office, and district office).

3 EXECUTION

3.1 GENERAL

Pursuant to the Contract Clause, SCHEDULE FOR CONSTRUCTION CONTRACTS, a project schedule as described below shall be prepared. The scheduling of work shall be the responsibility of the Contractor. Contractor management personnel shall actively participate in its development. Subcontractors and

suppliers working on the project shall contribute in developing and maintaining an accurate project schedule. The approved project schedule shall be used to measure the progress of the work, to aid in evaluating time extensions, and to provide the basis of progress payments.

3.2 BASIS FOR PAYMENT

The project schedule shall be the basis for measuring Contractor progress. The Contracting Officer will use an approved project schedule to evaluate Contractor progress for payment purposes. In the case where project schedule revisions have been directed by the Contracting Officer and those revisions have not been included in the project schedule, then the Contracting Officer may hold retainage up to the maximum allowed by contract, each payment period, until the project schedule updates have been accepted.

3.3 SOFTWARE

Computer software systems utilized by the Contractor to produce the project schedule shall be capable of providing all requirements of this specification.

3.3.1 Use of the Critical Path Method

The project schedule shall clearly show the critical path. If a network analysis system is used, the Critical Path Method (CPM) of network calculation shall be used to generate the project schedule, provided in either the Precedence Diagram Method (PDM) or the Arrow Diagram Method (ADM).

3.3.2 Level of Detail Required

The project schedule shall include an appropriate level of detail. The Contracting Officer will use, but is not limited to, the following conditions to determine the appropriate level of detail to be used in the project schedule.

3.3.2.1 Activity Durations

The Contractor shall breakout lump-sum or sum-job contract line items into subcategories, or activities. The number of activities shall be sufficient to allow the progress to be accurately determined between payment periods.

3.3.2.2 Procurement Activities

Tasks related to the procurement of long lead materials or equipment shall be included as separate activities in the project schedule. Long lead materials and equipment are those materials that have a procurement cycle of over calendar 90 days. Examples of procurement process activities include, but are not limited to: submittals, approvals, procurement, fabrication, delivery, installation, start-up, and testing.

3.3.2.3 Government Activities

Government and other agency activities that could impact progress shall be shown. These activities include, but are not limited to: approvals,

inspections, utility tie-in, Government furnished property, and notice to proceed for phasing requirements.

3.3.2.4 Responsibility

All activities shall be identified in the project schedule by the party (Prime Contractor, subcontractor, Government agency, etc.) responsible to perform the work. Activities shall not belong to more than one responsible party. The responsible party for each activity shall be identified by the Responsibility Code.

3.3.2.5 Feature of Work

All activities shall be identified in the project schedule according to the feature of work to which the activity belongs. Feature of work refers, but is not limited to a work breakdown structure for the project schedule. The feature of work for each activity shall be identified by the Feature of Work Code.

3.3.3 Scheduled Project Completion

The schedule interval shall extend from notice to proceed to the contract completion date. The notice to proceed date shall be taken as the date that notice to proceed was acknowledged.

3.3.3.1 Constraint of Last Activity

Completion of the last activity in the project schedule shall be constrained by the contract completion date. If the early finish of the last activity falls after the contract completion date, then the critical path shall show a negative float.

3.3.3.2 Early Project Completion

If the project schedule shows project completion prior to the contract completion date, the Contractor shall identify activities that have been accelerated and activities that are scheduled in parallel to support the "early" completion. The Contractor shall assist the Contracting Officer in evaluating the Contractor's ability to actually complete prior to the contract period.

3.3.4 Interim Completion Dates

Contractually specified interim completion dates shall also be constrained to show negative float if the early finish date of the last activity in that phase falls after the interim completion date.

3.3.5 Default Progress Data Disallowed

The Contractor shall document the actual start and actual finish dates on the daily quality control report for every in-progress or completed activity and ensure that the data contained on the daily quality control reports is the sole basis for project schedule updating. Actual Start and Finish dates shall not be automatically updated by default mechanisms that may be included in CPM scheduling software systems. Actual start and finish dates on the CPM schedule shall match those dates provided from Contractor quality control reports.

3.3.6 Out-of-Sequence Progress

The Contracting Officer shall be notified prior to work on any activities that are out-of-sequence with the project schedule. The Contractor shall update the project schedule to correct any out-of-sequence work.

3.3.7 Extended Non-Work Periods

Non-work periods of over 5 working days shall be identified by addition of activities that represent the delays.

3.3.8 Negative Lags

Lag durations contained in the project schedule shall not have a negative value.

3.4 PROJECT SCHEDULE SUBMISSIONS

The Contractor shall provide the submissions as described below.

3.4.1 Initial Project Schedule Submission

The project schedule shall provide a reasonable sequence of activities which represent work through the entire contract period and shall be at a reasonable level of detail.

3.4.2 Periodic Updates

Based on the result of progress meetings, the Contractor shall submit periodic project schedule updates. The Contractor shall furnish information and project schedule data, which in the judgement of the Contracting Officer, is necessary for verifying the Contractor's progress.

3.4.3 Standard Activity Coding Dictionary

The Contractor shall submit, with the initial project schedule, a coding scheme that shall be used throughout the project schedule for all activity codes contained in the project schedule. The coding scheme submitted shall list the values for each activity code category and translate those values into project specific designations. For example, a responsibility code value, "ELE", may be identified as "Electrical Subcontractor". Activity code values shall represent the same information throughout the duration of the contract.

3.5 SUBMISSION REQUIREMENTS

The following items shall be submitted for each project schedule submission:

3.5.1 Earnings Report

The Contractor shall submit a compilation of the Contractor's Total Earnings on the project through the most recent Monthly Progress Meeting. Activities shall be grouped by contract line item. The printed report shall contain, for each contract line item: activity number, activity description, original budgeted amount, total quantity, quantity to date, percent complete (based on cost), and earnings to date. A total project

percent complete shall also be provided. If necessary to substantiate partial payment and requested by the Contracting Officer, the earnings report shall detail activities within a contract line item.

3.5.2 Network Diagram

A network diagram shall be required on the initial project schedule submission and on periodic submissions when requested by the Contracting Officer (not less than quarterly). The network diagram shall depict and display the order and interdependence of activities and the sequence in which the work is to be accomplished. The network diagram shall be constructed to meet the following conditions:

- a. Continuous Flow. Diagrams shall show a continuous flow from left to right with no arrows from right to left. The activity or event number, description, duration, and estimated earned value shall be shown on the diagram.
- b. Project Milestone Dates. Dates shall be shown on the diagram for start of project, any contract required interim completion dates, and contract completion dates.
- c. Critical Path. The critical path shall be clearly shown.
- d. Banding. Activities shall be grouped to assist in the understanding of the activity sequence. Typically, this flow will group activities by category of work, work area and/or responsibility.
- e. S-Curves. Earnings curves showing projected early and late earnings and earnings to date.

3.6 PERIODIC PROGRESS MEETINGS

Progress meetings to discuss payment shall include a monthly onsite meeting or other regular intervals mutually agreed to at the preconstruction conference. During this meeting the Contractor shall describe, on an activity by activity basis, all proposed revisions and adjustments to the project schedule required to reflect the current status of the project.

3.6.1 Meeting Attendance

The Contractor's project manager and the Contractor's authorized representative responsible for preparation of the project schedule shall attend the regular progress meeting.

3.6.2 Update Submission Following Progress Meeting

A complete update of the project schedule containing all approved progress, revisions, and adjustments, based on the regular progress meeting, shall be submitted not later than 4 working days after every third monthly progress meeting.

3.6.3 Progress Meeting Contents

Update information, including actual start dates, actual finish dates, remaining durations, and cost-to-date shall be subject to the approval of the Contracting Officer. The Contractor shall address the following minimum

set of items, on an activity by activity basis, during each progress meeting.

- a. Start and Finish Dates. The actual start and actual finish dates for each completed activity. The actual start and projected finish dates for each activity in-progress.
- b. Cost Completion. The earnings for each activity started. Payment will be based on earnings for each in-progress or completed activity. Payment for individual activities will not be made for work that contains defects.
- c. Project Schedule Changes. All changes pertaining to notice to proceed on change orders, change orders to be incorporated into the project schedule, Contractor proposed changes in work sequence, corrections to project schedule for out-of-sequence progress, lag durations, and other changes that have been made pursuant to contract provisions shall be specifically identified and discussed.
- d. Other Changes. Other changes required due to delays in completion of any activity or group of activities include unusually severe weather, product procurement, or other delays or work stoppages which make re-planning the work necessary.

3.7 REQUESTS FOR TIME EXTENSIONS

In the event the Contractor requests an extension of the contract completion date, the Contractor shall furnish such justification, project schedule data and supporting evidence as the Contracting Officer may deem necessary for a determination as to whether or not the Contractor is entitled to an extension of time under the provisions of the contract.

3.7.1 Justification of Delay

The project schedule shall clearly display that the Contractor has used, in full, all the float time available for the work involved with this request. The Contracting Officer's determination as to the number of allowable days of contract extension shall be based upon an approved project schedule and other factual information. Delays that are caused by the Contractor's own actions will not be a cause for a time extension to the contract completion date.

3.7.2 Submission Requirements

The Contractor shall submit a justification in accordance with the requirements of other appropriate contract clauses and shall include, as a minimum:

- a. A list of affected activities, with their associated project schedule activity number.
- b. A brief explanation of the cause(s) of the change.
- c. An analysis of the overall impact of the changes proposed.
- d. If requested by the Contracting Officer, the Contractor shall provide an interim project schedule update with revised activities.

3.8 DIRECTED CHANGES

If notice to proceed is issued for undefinitized work, the Contractor shall submit proposed project schedule revisions to the Contracting Officer within 14 calendar days of the notice to proceed being issued. The proposed revisions to the project schedule must be approved by the Contracting Officer prior to inclusion of those changes within the project schedule. If the Contractor fails to submit the proposed revisions, the Contracting Officer may furnish the Contractor suggested revisions to the project schedule; and the Contractor shall update the project schedule with the Contracting Officer's revisions until a mutual agreement in the revisions is reached.

3.9 OWNERSHIP OF FLOAT

Float available in the project schedule, at any time, shall not be considered for the exclusive use of either the Government or the Contractor.

SECTION 01330

SUBMITTAL PROCEDURES

1 GENERAL

1.1 SUBMITTAL IDENTIFICATION

Submittals required are identified by SD numbers as follows:

SD-01 Data

SD-04 Drawings

SD-06 Instructions

SD-07 Schedules

SD-08 Statements

SD-09 Reports

SD-13 Certificates

SD-14 Samples

SD-18 Records

SD-19 Operation and Maintenance Manuals

1.2 SUBMITTAL CLASSIFICATION

Submittals are classified as follows:

1.2.1 Government Approved

Governmental approval is required for extensions of design, critical materials, deviations, equipment whose compatibility with the entire system must be checked, and other items as designated by the Contracting Officer. Within the terms of SECTION 00700: CONTRACT CLAUSE entitled "SPECIFICATIONS AND DRAWINGS FOR CONSTRUCTION," they are considered to be "shop drawings."

1.2.2 Information Only

All submittals not requiring Government approval will be for information only. They are not considered to be "shop drawings" within the terms of the Contract Clause referred to above.

1.3 APPROVED SUBMITTALS

The Contracting Officer's approval of submittals shall not be construed as a complete check, but will indicate only that the general method of construction, materials, detailing and other information are satisfactory. Approval will not relieve the Contractor of the responsibility for any error

which may exist, as the Contractor under the CQC requirements of this contract is responsible for dimensions, the design of adequate connections and details, and the satisfactory construction of all work. After submittals have been approved by the Contracting Officer, no resubmittal for the purpose of substituting materials or equipment will be considered unless accompanied by an explanation of why a substitution is necessary.

1.4 DISAPPROVED SUBMITTALS

The Contractor shall make all corrections required by the Contracting Officer and promptly furnish a corrected submittal in the form and number of copies specified for the initial submittal. If the Contractor considers any correction indicated on the submittals to constitute a change to the contract, a notice in accordance with SECTION 00700: CONTRACT CLAUSE "CHANGES" shall be given promptly to the Contracting Officer.

1.5 WITHHOLDING OF PAYMENT

Payment for materials incorporated in the work will not be made if required approvals have not been obtained.

1.6 MEASUREMENT AND PAYMENT

The work of this section will not be measured for payment. The Contractor shall be responsible for the work of this section, without any direct compensation being made other than the payment received for contract items.

2 PRODUCTS (NOT APPLICABLE)

3 EXECUTION

3.1 GENERAL

The Contractor shall make submittals as required by the specifications. The Contracting Officer may request submittals in addition to those specified when deemed necessary to adequately describe the work covered in the respective sections. Units of weights and measures used on all submittals shall be the same as those used in the contract drawings. Each submittal shall be complete and in sufficient detail to allow ready determination of compliance with contract requirements. Prior to submittal, all items shall be checked and approved by the Contractor's Quality Control (CQC) representative and each item shall be stamped, signed, and dated by the CQC representative indicating action taken. Proposed deviations from the contract requirements shall be clearly identified. Submittals shall include items such as: Contractor's, manufacturer's, or fabricator's drawings; descriptive literature including (but not limited to) catalog cuts, diagrams, operating charts or curves; test reports; test cylinders; samples; O&M manuals (including parts list); certifications; warranties; and other such required submittals. Submittals requiring Government approval shall be scheduled and made prior to the acquisition of the material or equipment covered thereby. Samples remaining upon completion of the work shall be picked up and disposed of in accordance with manufacturer's Material Safety Data Sheets (MSDS) and in compliance with existing laws and regulations.

3.2 SUBMITTAL REGISTER (ENG FORM 4288)

At the end of this section is one set of ENG Form 4288 listing items of equipment and materials for which submittals are required by the specifications; this list may not be all inclusive and additional submittals may be required. The Contractor will also be given the submittal register as a diskette containing the computerized ENG Form 4288 and instructions on the use of the diskette. Columns "d" through "r" have been completed by the Government; the Contractor shall complete columns "a", "b", "c" and "s" through "u" and submit the forms (hard copy plus associated electronic file) to the Contracting Officer for approval within 7 calendar days after Notice to Proceed. The Contractor shall keep the submittal register up-to-date and shall submit it to the Government together with the monthly payment request. The approved submittal register will become the scheduling document and will be used to control submittals throughout the life of the contract. The submittal register and the progress schedules shall be coordinated.

3.3 SCHEDULING

Submittals covering component items forming a system or items that are interrelated shall be scheduled to be coordinated and submitted concurrently. Certifications to be submitted with the pertinent drawings shall be so scheduled. Adequate time (a minimum of 30 calendar days exclusive of mailing time) shall be allowed and shown on the register for review and approval. No delay damages or time extensions will be allowed for time lost in late submittals. The submittal register shall provide for a reasonable timely distribution of shop drawings as they are prepared (particularly within a specific discipline, i.e.: structural, mechanical).

3.4 TRANSMITTAL FORM (ENG FORM 4025-R)

The sample transmittal form (ENG Form 4025-R) attached to this section shall be used for submitting both Government approved and information only submittals in accordance with the instructions on the reverse side of the form. These forms will be furnished to the Contractor. This form shall be properly completed by filling out all the heading blank spaces and identifying each item submitted. Special care shall be exercised to ensure proper listing of the specification paragraph and/or sheet number of the contract drawings pertinent to the data submitted for each item.

3.5 SUBMITTAL PROCEDURE

3.5.1 Submittal Copies

The Contractor shall submit 6 copies of each submittal (both government approved and for information only) unless otherwise indicated. Each transmittal shall address only one submittal item. Transmittals returned for resubmission shall be resubmitted in their entirety. When approved by the Contracting Officer, routine test reports and delivery tickets may be submitted with daily quality control reports in place of following submittal procedures under this section.

3.5.2 Schedule

Shop drawings shall be submitted with ample time to secure Government approval prior to the time the items covered thereby are to be delivered to the site. Additional time should be allowed for possible resubmittal. Materials fabricated or delivered without Government approval of the shop drawing will be subject to rejection. All submittals shall be made prior to

commencement of applicable work, and allow adequate time for government review acceptable to the Contracting Officer.

3.5.3 Shop Drawings

Shop drawings shall be reproductions on high quality paper with clear legible print. Drawings shall generally be bordered a minimum of one inch and trimmed to neat lines. Shop drawing quality will be subject to approval. Each shop drawing, including catalog data, shall be identified with a title block including the name of the Contractor, contract number, name and location of project, and name of the item of work or structure to which the shop drawing applies. Catalog data, including specifications and full descriptive matter, may be submitted as shop drawings. Catalog data must be supplemented as necessary to include all pertinent data to verify conformance to the contract documents. When catalog data includes non applicable data, the applicable data shall be clearly indicated.

3.5.4 Deviations

For submittals which include proposed deviations requested by the Contractor, the column "variation" of ENG Form 4025-R shall be checked. The Contractor shall set forth in writing the reason for any deviations and annotate such deviations on the submittal. The Government reserves the right to rescind inadvertent approval of submittals containing unnoted deviations.

3.6 CONTROL OF SUBMITTALS

The Contractor shall carefully control his procurement operations to ensure that each individual submittal is made on or before the Contractor scheduled submittal date shown on the approved "Submittal Register."

3.7 GOVERNMENT APPROVED SUBMITTALS

Upon completion of review of submittals requiring Government approval, the submittals will be identified as having received approval by being so stamped and dated. Five copies of the submittal will be retained by the Contracting Officer and 1 copy of the submittal will be returned to the Contractor.

3.8 INFORMATION ONLY SUBMITTALS

Normally submittals for information only will not be returned. Approval of the Contracting Officer is not required on information only submittals. The Government reserves the right to require the Contractor to resubmit any item found not to comply with the contract. This does not relieve the Contractor from the obligation to furnish material conforming to the plans and specifications; will not prevent the Contracting Officer from requiring removal and replacement of nonconforming material incorporated in the work; and does not relieve the Contractor of the requirement to furnish samples for testing by the Government laboratory or for check testing by the Government in those instances where the technical specifications so prescribe.

3.9 STAMPS

Stamps used by the Contractor on the submittal data to certify that the submittal meets contract requirements shall be similar to the following:

CONTRACTOR
(Firm Name)
_____ Approved
_____ Approved with corrections as noted on submittal data and/or attached sheets(s).
SIGNATURE: _____
TITLE: _____
DATE: _____

3.10 CONTRACTOR RECORD DRAWINGS

The Contractor shall maintain a separate set of marked-up full-scale contract drawings indicating as-built conditions. These drawings shall be maintained in a current condition at all times until completion of the work and shall be available for review by Government personnel at all times. All variations from the contract drawings, for whatever reason, including those occasioned by modifications, optional materials, and the required coordination between trades, shall be indicated. These variations shall be shown in the same general detail utilized in the contract drawings. Revisions shall be shown on all drawings and details related to the changed feature. These drawings shall be neatly prepared with clear legible print. Deleted items shall be indicated in red and added items or changed locations shall be shown in green. These drawings shall be furnished to the Contracting Officer within 30 days after the required contract completion date.

3.10.1 As-Built Shop Drawings

The Contractor shall record changes to shop drawings to indicate as-built conditions. These drawings shall show all changes and revisions made up to the time the equipment is completed and accepted.

TRANSMITTAL OF SHOP DRAWINGS, EQUIPMENT DATA, MATERIAL SAMPLES, OR MANUFACTURER'S CERTIFICATES OF COMPLIANCE

(Read instructions on the reverse side prior to initiating this form)

SECTION I - REQUEST FOR APPROVAL OF THE FOLLOWING ITEMS

(This section will be initiated by the contractor)

TO:	FROM:	CONTRACT NO.	CHECK ONE: <input type="checkbox"/> THIS IS A NEW TRANSMITTAL <input type="checkbox"/> THIS IS A RESUBMITTAL OF TRANSMITTAL _____
SPECIFICATION SEC. NO. (Cover only one section with each transmittal)		PROJECT TITLE AND LOCATION	CHECK ONE: THIS TRANSMITTAL IS FOR <input type="checkbox"/> FIO <input type="checkbox"/> GOV'T. APPROVAL

[illegible]

SECTION II - APPROVAL ACTION

ENCLOSURES RETURNED <i>(List by Item No.)</i>	NAME, TITLE AND SIGNATURE OF APPROVING AUTHORITY	DATE
---	--	------

INSTRUCTIONS

1. Section I will be initiated by the Contractor in the required number of copies.
2. Each transmittal shall be numbered consecutively in the space provided for "Transmittal No.". This number, in addition to the contract number, will form a serial number for identifying each submittal. For new submittals or resubmittals mark the appropriate box; on resubmittals, insert transmittal number of last submission as well as the new submittal number.
3. The "Item No." will be the same "Item No." as indicated on ENG FORM 4288-R for each entry on this form.
4. Submittals requiring expeditious handling will be submitted on a separate form.
5. Separate transmittal form will be used for submittals under separate sections of the specifications.
6. A check shall be placed in the "Variation" column when a submittal is not in accordance with the plans and specifications--also, a written statement to that effect shall be included in the space provided for "Remarks".
7. Form is self-transmittal, letter of transmittal is not required.
8. When a sample of material or Manufacturer's Certificate of Compliance is transmitted, indicate "Sample" or "Certificate" in column c, Section I.
9. U.S. Army Corps of Engineers approving authority will assign action codes as indicated below in space provided in Section I, column i to each item submitted. In addition they will ensure enclosures are indicated and attached to the form prior to return to the contractor. The Contractor will assign action codes as indicated below in Section I, column g, to each item submitted.

THE FOLLOWING ACTION CODES ARE GIVEN TO ITEMS SUBMITTED

A --	Approved as submitted.	E --	Disapproved (See attached).
B --	Approved, except as noted on drawings.	F --	Receipt acknowledged.
C --	Approved, except as noted on drawings. Refer to attached sheet resubmission required.	FX --	Receipt acknowledged, does not comply as noted with contract requirements.
D --	Will be returned by separate correspondence.	G --	Other (Specify)

10. Approval of items does not relieve the contractor from complying with all the requirements of the contract plans and specifications.

PAGE 1 OF 1 PAGES

PAGE 1 OF 1 PAGES

(ER 415 1-10)

TITLE AND LOCATION

ENGLISH COULEE

SPECIFICATION SECTION

ENGLISH COULEE

03200

[illegible]

03300

ENG FORM 4288, Jul 96	SPECSINTACT	PAGE 1 OF 1 PAGES
-----------------------	-------------	-------------------

SPECIFICATION SECTION

05055

PAGE 1 OF 1 PAGES

PAGE 1 OF 1 PAGES

SUBMITTAL REGISTER

(ER 415 1-10)

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
ENGLISH COULEE												SPECIFICATION SECTION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
												05615																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																			
a.	b.	c.	d.	e.	TYPE OF SUBMITTAL													CLASSIFICATION			CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION			REMARKS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
					1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25		26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234	1235	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1247	1248	1249	1250	1251	1252	1253	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446	1447	1448	1449	1450

SUBMITTAL REGISTER

ENG FORM 4288, Jul 96

PAGE 1 OF 1 PAGES

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
ENGLISH COULEE												SPECIFICATION SECTION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
												09900																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
a.	b.	c.	d.	e.	TYPE OF SUBMITTAL													CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION			GOVERNMENT ACTION			REMARKS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														
					1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	19	20	21	22		23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234	1235	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1247	1248	1249	1250	1251	1252	1253	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444

PAGE 1 OF 1 PAGES

CONTRACT NO.

CONTRACTOR

SPECIFICATION SECTION

11280

[illegible]

PAGE 1 OF 1 PAGES

02464

PAGE 1 OF 1 PAGES

CONTRACT NO.

TITLE AND LOCATION

CONTRACTOR

SPECIFICATION SECTION

ENGLISH COULEE

02630

[illegible]

(ER 415 1-10)

ENG FORM 4288, Jul 96

(ER 415 1-10)

TITLE AND LOCATION

TITLE AND LOCATION
ENGLISH COULEE

SPECIFICATION SECTION

ENGLISH COULEE

02741

TRANSMITTAL NO.

[illegible]DESCRIPTION OF
ITEM SUBMITTED

d.

Paving Schedule	
-----------------	--

22

—

w.

2

33

৯৯

SPECSINTACT

PAGE 1 OF 1 PAGES

02754

PAGE 1 OF 1 PAGES

SUBMITTAL REGISTER

(ER 415 1-10)

CONTRACT NO.	
--------------	--

TITLE AND LOCATION	DATE	BY	REMARKS
...

ENGLISH COULEE

CONTRACTOR

SPECIFICATION SECTION

02760

[illegible]

PAGE 1 OF 1 PAGES

PAGE 1 OF 1 PAGES

01270

PAGE 1 OF 1 PAGES

01320

PAGE 1 OF 1 PAGES

SUBMITTAL REGISTER

(ER 415 1-10)

TITLE AND LOCATION		CONTRACTOR										CONTRACT NO.																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
ENGLISH COULEE												SPECIFICATION SECTION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
												01410																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
a.	TRANS-MITTAL NO.	b.	ITEM NO.	SPECIFICATION PARAGRAPH NUMBER	DESCRIPTION OF ITEM SUBMITTED	TYPE OF SUBMITTAL													CLASSIFICATION	CONTRACTOR SCHEDULE DATES			CONTRACTOR ACTION		GOVERNMENT ACTION			REMARKS																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																	
						1	2	3	4	5	6	7	8	9	10	11	12	13		14	15	16	17	18	19	20	21		22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54	55	56	57	58	59	60	61	62	63	64	65	66	67	68	69	70	71	72	73	74	75	76	77	78	79	80	81	82	83	84	85	86	87	88	89	90	91	92	93	94	95	96	97	98	99	100	101	102	103	104	105	106	107	108	109	110	111	112	113	114	115	116	117	118	119	120	121	122	123	124	125	126	127	128	129	130	131	132	133	134	135	136	137	138	139	140	141	142	143	144	145	146	147	148	149	150	151	152	153	154	155	156	157	158	159	160	161	162	163	164	165	166	167	168	169	170	171	172	173	174	175	176	177	178	179	180	181	182	183	184	185	186	187	188	189	190	191	192	193	194	195	196	197	198	199	200	201	202	203	204	205	206	207	208	209	210	211	212	213	214	215	216	217	218	219	220	221	222	223	224	225	226	227	228	229	230	231	232	233	234	235	236	237	238	239	240	241	242	243	244	245	246	247	248	249	250	251	252	253	254	255	256	257	258	259	260	261	262	263	264	265	266	267	268	269	270	271	272	273	274	275	276	277	278	279	280	281	282	283	284	285	286	287	288	289	290	291	292	293	294	295	296	297	298	299	300	301	302	303	304	305	306	307	308	309	310	311	312	313	314	315	316	317	318	319	320	321	322	323	324	325	326	327	328	329	330	331	332	333	334	335	336	337	338	339	340	341	342	343	344	345	346	347	348	349	350	351	352	353	354	355	356	357	358	359	360	361	362	363	364	365	366	367	368	369	370	371	372	373	374	375	376	377	378	379	380	381	382	383	384	385	386	387	388	389	390	391	392	393	394	395	396	397	398	399	400	401	402	403	404	405	406	407	408	409	410	411	412	413	414	415	416	417	418	419	420	421	422	423	424	425	426	427	428	429	430	431	432	433	434	435	436	437	438	439	440	441	442	443	444	445	446	447	448	449	450	451	452	453	454	455	456	457	458	459	460	461	462	463	464	465	466	467	468	469	470	471	472	473	474	475	476	477	478	479	480	481	482	483	484	485	486	487	488	489	490	491	492	493	494	495	496	497	498	499	500	501	502	503	504	505	506	507	508	509	510	511	512	513	514	515	516	517	518	519	520	521	522	523	524	525	526	527	528	529	530	531	532	533	534	535	536	537	538	539	540	541	542	543	544	545	546	547	548	549	550	551	552	553	554	555	556	557	558	559	560	561	562	563	564	565	566	567	568	569	570	571	572	573	574	575	576	577	578	579	580	581	582	583	584	585	586	587	588	589	590	591	592	593	594	595	596	597	598	599	600	601	602	603	604	605	606	607	608	609	610	611	612	613	614	615	616	617	618	619	620	621	622	623	624	625	626	627	628	629	630	631	632	633	634	635	636	637	638	639	640	641	642	643	644	645	646	647	648	649	650	651	652	653	654	655	656	657	658	659	660	661	662	663	664	665	666	667	668	669	670	671	672	673	674	675	676	677	678	679	680	681	682	683	684	685	686	687	688	689	690	691	692	693	694	695	696	697	698	699	700	701	702	703	704	705	706	707	708	709	710	711	712	713	714	715	716	717	718	719	720	721	722	723	724	725	726	727	728	729	730	731	732	733	734	735	736	737	738	739	740	741	742	743	744	745	746	747	748	749	750	751	752	753	754	755	756	757	758	759	760	761	762	763	764	765	766	767	768	769	770	771	772	773	774	775	776	777	778	779	780	781	782	783	784	785	786	787	788	789	790	791	792	793	794	795	796	797	798	799	800	801	802	803	804	805	806	807	808	809	810	811	812	813	814	815	816	817	818	819	820	821	822	823	824	825	826	827	828	829	830	831	832	833	834	835	836	837	838	839	840	841	842	843	844	845	846	847	848	849	850	851	852	853	854	855	856	857	858	859	860	861	862	863	864	865	866	867	868	869	870	871	872	873	874	875	876	877	878	879	880	881	882	883	884	885	886	887	888	889	890	891	892	893	894	895	896	897	898	899	900	901	902	903	904	905	906	907	908	909	910	911	912	913	914	915	916	917	918	919	920	921	922	923	924	925	926	927	928	929	930	931	932	933	934	935	936	937	938	939	940	941	942	943	944	945	946	947	948	949	950	951	952	953	954	955	956	957	958	959	960	961	962	963	964	965	966	967	968	969	970	971	972	973	974	975	976	977	978	979	980	981	982	983	984	985	986	987	988	989	990	991	992	993	994	995	996	997	998	999	1000	1001	1002	1003	1004	1005	1006	1007	1008	1009	1010	1011	1012	1013	1014	1015	1016	1017	1018	1019	1020	1021	1022	1023	1024	1025	1026	1027	1028	1029	1030	1031	1032	1033	1034	1035	1036	1037	1038	1039	1040	1041	1042	1043	1044	1045	1046	1047	1048	1049	1050	1051	1052	1053	1054	1055	1056	1057	1058	1059	1060	1061	1062	1063	1064	1065	1066	1067	1068	1069	1070	1071	1072	1073	1074	1075	1076	1077	1078	1079	1080	1081	1082	1083	1084	1085	1086	1087	1088	1089	1090	1091	1092	1093	1094	1095	1096	1097	1098	1099	1100	1101	1102	1103	1104	1105	1106	1107	1108	1109	1110	1111	1112	1113	1114	1115	1116	1117	1118	1119	1120	1121	1122	1123	1124	1125	1126	1127	1128	1129	1130	1131	1132	1133	1134	1135	1136	1137	1138	1139	1140	1141	1142	1143	1144	1145	1146	1147	1148	1149	1150	1151	1152	1153	1154	1155	1156	1157	1158	1159	1160	1161	1162	1163	1164	1165	1166	1167	1168	1169	1170	1171	1172	1173	1174	1175	1176	1177	1178	1179	1180	1181	1182	1183	1184	1185	1186	1187	1188	1189	1190	1191	1192	1193	1194	1195	1196	1197	1198	1199	1200	1201	1202	1203	1204	1205	1206	1207	1208	1209	1210	1211	1212	1213	1214	1215	1216	1217	1218	1219	1220	1221	1222	1223	1224	1225	1226	1227	1228	1229	1230	1231	1232	1233	1234	1235	1236	1237	1238	1239	1240	1241	1242	1243	1244	1245	1246	1247	1248	1249	1250	1251	1252	1253	1254	1255	1256	1257	1258	1259	1260	1261	1262	1263	1264	1265	1266	1267	1268	1269	1270	1271	1272	1273	1274	1275	1276	1277	1278	1279	1280	1281	1282	1283	1284	1285	1286	1287	1288	1289	1290	1291	1292	1293	1294	1295	1296	1297	1298	1299	1300	1301	1302	1303	1304	1305	1306	1307	1308	1309	1310	1311	1312	1313	1314	1315	1316	1317	1318	1319	1320	1321	1322	1323	1324	1325	1326	1327	1328	1329	1330	1331	1332	1333	1334	1335	1336	1337	1338	1339	1340	1341	1342	1343	1344	1345	1346	1347	1348	1349	1350	1351	1352	1353	1354	1355	1356	1357	1358	1359	1360	1361	1362	1363	1364	1365	1366	1367	1368	1369	1370	1371	1372	1373	1374	1375	1376	1377	1378	1379	1380	1381	1382	1383	1384	1385	1386	1387	1388	1389	1390	1391	1392	1393	1394	1395	1396	1397	1398	1399	1400	1401	1402	1403	1404	1405	1406	1407	1408	1409	1410	1411	1412	1413	1414	1415	1416	1417	1418	1419	1420	1421	1422	1423	1424	1425	1426	1427	1428	1429	1430	1431	1432	1433	1434	1435	1436	1437	1438	1439	1440	1441	1442	1443	1444	1445	1446

Table 1

PAGE 1 OF 1 PAGES

PAGE 1 OF 1 PAGES

PAGE 1 OF 1 PAGES

[illegible]

02388

[illegible]

SECTION 01410

ENVIRONMENTAL PROTECTION

12/00

1 GENERAL

1.1 GENERAL REQUIREMENTS

The Contractor shall perform the work minimizing environmental pollution and damage as the result of construction operations. The environmental resources within the project boundaries and those affected outside the limits of permanent work shall be protected during the entire duration of this contract.

1.1.1 Subcontractors

The Contractor shall insure that its subcontractors comply with the requirements of this section.

1.1.2 Definitions

For the purpose of this specification, environmental pollution and damage is defined as the presence of chemical, physical, or biological elements or agents which adversely affect human health or welfare; unfavorably alter ecological balances of importance to human life; affect other species of importance to man; or degrade the utility of the environment for aesthetic, cultural, and/or historical purposes. The control of environmental pollution and damage requires consideration of air, water, and land, and includes management of visual aesthetics, noise, solid waste, radiant energy, and radioactive materials, as well as other pollutants.

1.2 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following items shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES.

SD-08 Statements

Environmental Protection Plan; GA.

The Environmental Protection Plan shall be prepared in accordance with PARAGRAPH: ENVIRONMENTAL PROTECTION PLAN.

1.3 ENVIRONMENTAL PROTECTION PLAN

1.3.1 Implementation.

Prior to ordering required materials/equipment or commencing construction work, the Contractor shall:

- a. Submit to the Contracting Officer an acceptable written Environmental Protection Plan;
- b. Obtain the Contracting Officer's written acceptance of the Environmental Protection Plan; and
- c. Meet with representatives of the Contracting Officer for the purpose of developing an understanding of the requirements and methods of administration of the Contractor's Environmental Protection Plan.

1.3.2 Compliance.

Notwithstanding the requirements of this section and notwithstanding approval by the Contracting Officer of the Contractor's Environmental Protection Plan, nothing herein shall be construed as relieving the Contractor of all applicable Federal, State, and local environmental protection laws and regulations.

1.3.3 Contents.

The Environmental Protection Plan shall include, but shall not be limited to, the following:

- a. Name(s) of person(s) within the Contractor's on-site organization who is(are) responsible for ensuring that the Environmental Protection Plan is adhered to.
- b. Meeting times and personnel attendance for communication and notification of personnel and subcontractors regarding environmental requirements, and name(s) of person(s) responsible for this training.
- c. The Contractor shall prepare a listing of resources needing protection, (i.e., trees, shrubs, vines, grasses and ground cover, landscape features, air and water quality, fish and wildlife, soil, and historical, archaeological, and cultural resources); and what methods will be used to protect these resources.
- d. Name(s) of person(s) responsible for manifesting hazardous waste to be removed from the site, if applicable.
- e. Procedures to be implemented to provide the required environmental protection, to comply with the applicable laws and regulations, and to correct pollution due to accident, natural causes, or failure to follow the procedures of the Environmental Protection Plan.
- f. Methods and locations for waste disposal. Licenses or permits shall be submitted for solid waste disposal sites that are not an operating commercial facility. Evidence of disposal facility acceptance shall be submitted for any hazardous or toxic waste.
- g. Drawings showing locations of any proposed temporary excavations or embankments for haul roads, stream crossings, material storage areas, structures, sanitary facilities, and stockpiles of excess or spoil materials.

- h. Environmental monitoring plans for the job site, including land, water, air, and noise monitoring.
- i. Traffic control plans.
- j. Methods of protecting surface and ground water during construction activities.
- k. Work area plan showing the proposed activity in each portion of the area and identifying the areas of limited use or nonuse. Plan should include measures for marking the limits of use areas.
- l. Drawing of borrow areas.
- m. Plans for restoration of landscape damage.

1.4 PERMITS

Permits obtained by the Government related to the work of this contract are attached in SECTION 00830: ATTACHMENTS, or referenced in SECTION 01000: GENERAL. The Contractor is responsible for obtaining all applicable permits or licenses(those not obtained by the Government). The Contractor shall be responsible for implementing the terms and requirements of the permits held by the Contractor or the Government. A copy of permits referenced in SECTION 01000: GENERAL are available for inspection in the Office of the District Engineer, Army Corps of Engineers Centre, 190 Fifth Street East, St. Paul, Minnesota 55101-1638.

1.5 NOTIFICATION

The Contracting Officer will notify the Contractor in writing of any observed noncompliance with the previously mentioned Federal, State or local laws or regulations, permits, and other elements of the Contractor's Environmental Protection Plan. The Contractor shall, after receipt of such notice, inform the Contracting Officer of proposed corrective action and take such action when approved. If the Contractor fails to comply promptly, the Contracting Officer may issue an order stopping (suspending) all or part of the work until satisfactory corrective action has been taken. No time extensions shall be granted or costs or damages allowed to the Contractor for any such suspensions. Failure of the Contracting Officer to notify the Contractor of any noncompliance with Federal, State, or local laws or regulations does not relieve the Contractor of the obligation to be in conformance with those requirements.

1.6 PREVIOUSLY USED EQUIPMENT

The Contractor shall thoroughly clean all construction equipment previously used at other sites before it is brought into the work areas, ensuring that soil residuals are removed and that egg deposits from plant pests are not present; the Contractor shall consult with the USDA jurisdictional office for additional cleaning requirements.

1.7 PAYMENT

No separate payment or direct payment will be made for work covered under this section and such work will be considered as a subsidiary obligation of the Contractor.

2 PRODUCTS (NOT APPLICABLE)

3 EXECUTION

3.1 ENVIRONMENTAL RESOURCES.

The environmental resources within the project boundaries and those affected outside the limits of permanent work under this contract shall be protected during the entire period of this contract. The Contractor shall confine its activities to areas defined by the drawings and specifications.

3.2 LAND RESOURCES

Prior to the beginning of any construction, the Contractor shall identify all land resources to be preserved within the Contractor's work area. The Contractor shall not remove, cut, deface, injure, or destroy land resources including trees, shrubs, vines, grasses, topsoil, and land forms without permission from the Contracting Officer. No ropes, cables, or guys shall be fastened to or attached to any trees for anchorage unless specifically authorized. Where such special emergency use is permitted, the Contractor shall provide effective protection for land and vegetation resources at all times as defined in the following subparagraphs. Stone, earth or other material displaced into uncleared areas shall be removed.

3.2.1 Work Area Limits

Prior to any construction, the Contractor shall mark the areas that need not be disturbed under this contract. Isolated areas within the general work area which are to be saved and protected shall also be marked or fenced. Monuments and markers shall be protected before construction operations commence. Where construction operations are to be conducted during darkness, the markers shall be visible. The Contractor's personnel shall be knowledgeable of the purpose for marking and/or protecting particular objects.

3.2.2 Landscape

Trees, shrubs, vines, grasses, land forms and other landscape features indicated and defined on the drawings to be preserved shall be clearly identified by marking, fencing, or wrapping with boards, or any other approved techniques.

3.2.3 Unprotected Erodible Soils

Earthwork brought to final grade shall be finished as indicated. Side slopes and back slopes shall be protected as soon as practicable upon completion of rough grading. All earthwork shall be planned and conducted to minimize the duration of exposure of unprotected soils. Except in cases where the constructed feature obscures borrow areas, quarries, and waste material areas, these areas shall not initially be totally cleared. Clearing of such areas shall progress in reasonably sized increments as needed to use the developed areas as approved by the Contracting Officer.

3.2.4 Disturbed Areas

The Contractor shall effectively prevent erosion and control sedimentation through approved methods including, but not limited to, the following:

- a. Retardation and control of runoff. Runoff from the construction site or from storms shall be controlled, retarded, and diverted to protected drainage courses by means of diversion ditches, benches, berms, and by any measures required by area wide plans under the Clean Water Act.
- b. Erosion and sedimentation control devices. The Contractor shall construct or install temporary and permanent erosion and sedimentation control features as indicated or required. Berms, dikes, drains, sedimentation basins, grassing, and mulching shall be maintained until permanent drainage and erosion control facilities are completed and operative.
- c. Sediment basins. Sediment from construction areas shall be trapped in temporary or permanent sediment basins. The sediment basins shall be constructed in accordance with basin plans when shown on the drawings. The basins shall accommodate the runoff of a local 5 year storm, except that the design storm event required by the watershed district, watershed management board, or similar governing agency shall be used if available. After each storm, the basins shall be pumped dry and accumulated sediment shall be removed to maintain basin effectiveness. Overflow shall be controlled by paved weirs or by vertical overflow pipes. The collected topsoil sediment shall be reused for fill on the construction site, and/or stockpiled for use at another site. The Contractor shall institute effluent quality monitoring programs as required by State and local environmental agencies.

3.2.5 Contractor Facilities and Work Areas

The Contractor's field offices, staging areas, stockpile storage, and temporary buildings shall be located in accordance with the requirements of SECTION 01500: TEMPORARY CONSTRUCTION FACILITIES. Temporary movement or relocation of Contractor facilities shall be made only when approved. Borrow areas shall be managed to minimize erosion and to prevent sediment from entering nearby waters. Spoil areas shall be managed and controlled to limit spoil intrusion into areas designated on the drawings and to prevent erosion of soil or sediment from entering nearby waters. Spoil areas shall be developed in accordance with the grading plan indicated on the drawings. Temporary excavation and embankments for plant and/or work areas shall be controlled to protect adjacent areas from despoilment.

3.3 WATER RESOURCES

The Contractor shall keep construction activities under surveillance, management, and control to avoid pollution of surface and ground waters. Toxic or hazardous chemicals shall not be applied to soil or vegetation when such application may cause contamination of the fresh water reserve. Monitoring of water areas affected by construction shall be the Contractor's responsibility. All water areas affected by construction activities shall be monitored by the Contractor.

3.3.1 Washing and Curing Water

Waste waters directly derived from construction activities shall not be allowed to enter water areas. Waste waters shall be collected and placed in retention ponds where suspended material can be settled out or the water evaporates to separate pollutants from the water.

3.3.2 Cofferdam and Diversion Operations

Construction operations for dewatering, and removal of cofferdams, shall be controlled at all times to limit the impact of water turbidity on the habitat for wildlife and on water quality for downstream use. The Contractor shall plan its operations and perform all work necessary to minimize adverse impact or violation of the water quality standards applicable to this contract.

3.3.3 Stream Crossings

Stream crossings shall be controlled during construction. Crossings shall provide movement of materials or equipment which do not violate water pollution control standards of Federal, State, or local governments.

3.3.4 Fish and Wildlife

The Contractor shall minimize interference with, disturbance to, and damage of fish and wildlife. Species that require specific attention along with measures for their protection shall be listed by the Contractor prior to beginning of construction operations.

3.4 #.1 FUEL HANDLING

The Contractor shall provide containment around fueling areas to ensure that spills do not reach waters of the state.

3.5 AIR RESOURCES

Equipment operation and activities or processes performed by the Contractor in accomplishing the specified construction shall be in accordance with State air pollution statutes, rules, and regulations and all Federal emission and performance laws and standards. Ambient Air Quality Standards set by the Environmental Protection Agency shall be maintained. Monitoring of air quality shall be the Contractor's responsibility. All air areas affected by the construction activities shall be monitored by the Contractor.

3.5.1 Particulates

Dust particles; aerosols and gaseous by-products from construction activities; and processing and preparation of materials, such as from asphaltic batch plants; shall be controlled at all times, including weekends, holidays and hours when work is not in progress. The Contractor shall maintain excavations, stockpiles, haul roads, permanent and temporary access roads, plant sites, spoil areas, borrow areas, and other work areas within or outside the project boundaries free from particulates which would cause the air pollution standards to be exceeded or which would cause a hazard or a nuisance. Sprinkling, chemical treatment of an approved type, light bituminous treatment, baghouse, scrubbers, electrostatic precipitators

or other methods will be permitted to control particulates in the work area. Sprinkling, to be efficient, must be repeated to keep the disturbed area damp at all times. The Contractor must have sufficient, competent equipment available to accomplish these tasks. Particulate control shall be performed as the work proceeds and whenever a particulate nuisance or hazard occurs.

3.5.2 Hydrocarbons and Carbon Monoxide

Hydrocarbons and carbon monoxide emissions from equipment shall be controlled to Federal and State allowable limits at all times.

3.5.3 Odors

Odors shall be controlled at all times for all construction activities, processing and preparation of materials.

3.5.4 Sound Intrusions

The Contractor shall keep construction activities under surveillance and control to minimize environment damage by noise. The Contractor shall use methods and devices to control noise emitted by equipment to within the levels specified in the "Safety and Health Requirements Manual" referenced in the clause "Accident Prevention" in SECTION 00700: CONTRACT CLAUSES.

3.6 WASTE DISPOSAL

The Contracting Officer shall be informed of any waste disposal requirements identified during the work and not covered in the Environmental Protection Plan. Waste disposal plans shall be updated and submitted as required.

3.6.1 Solid Wastes

Solid wastes (excluding clearing debris) shall be placed in containers which are emptied on a regular schedule. Handling and disposal shall be conducted to prevent contamination. Segregation measures shall be employed so that no hazardous or toxic waste will become co-mingled with solid waste. The Contractor shall transport solid waste off Project Site and dispose of it in compliance with Federal, State, and local requirements for solid waste disposal. The Contractor shall comply with Federal, State, and local laws and regulations pertaining to the use of landfill areas.

3.6.2 Chemical Wastes

Chemical waste shall be stored in corrosion resistant containers, removed from the work areas, and disposed of in accordance with Federal, State, and local laws and regulations.

3.7 HISTORICAL, ARCHAEOLOGICAL, AND CULTURAL RESOURCES

Existing historical, archaeological, and cultural resources within the Contractor's work area will be so designated by the Contracting Officer if any have been identified. The Contractor shall take precautions to preserve all such resources as they existed at the time they were first pointed out. The Contractor shall provide and install protection for these resources and be responsible for their preservation during the life of the contract. If during excavation or other construction activities any previously unidentified or unanticipated resources are discovered or found, all

activities that may damage or alter such resources shall be temporarily suspended. Resources covered by this paragraph include but are not limited to: any human skeletal remains or burials; artifacts; shell, midden, bone, charcoal, or other deposits; rocks or coral alignments, pavings, wall, or other constructed features; and any indication of agricultural or other human activities. Upon such discovery or find, the Contractor shall immediately notify the Contracting Officer.

3.8 POST CONSTRUCTION CLEANUP

The Contractor shall clean up all areas used for construction.

3.9 RESTORATION OF LANDSCAPE DAMAGE

The Contractor shall restore all landscape features damaged or destroyed during construction operations outside the neat lines of project features. Such restoration shall be in accordance with the Environmental Protection Plan. This work shall be accomplished at the Contractor's expense and at no additional cost to the Government.

3.10 MAINTENANCE OF POLLUTION FACILITIES

The Contractor shall maintain permanent and temporary pollution control facilities and devices for the duration of the contract or for that length of time construction activities create the particular pollutant.

3.11 TRAINING OF CONTRACTOR PERSONNEL

The Contractor's personnel shall be trained in all phases of environmental protection. The training shall include methods of detecting and avoiding pollution, familiarization with pollution standards, both statutory and contractual, and installation and care of facilities, devices, vegetative covers, and instruments required for monitoring purposes to ensure adequate and continuous environmental pollution control.

SECTION 01451

CONTRACTOR QUALITY CONTROL

11/00

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 3740 (1996) Minimum Requirements for Agencies Engaged in the Testing and/or Inspection of Soil and Rock as Used in Engineering Design and Construction

ASTM E 329 (1995b) Agencies Engaged in the Testing and/or Inspection of Materials Used in Construction

1.2 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-08 Statements

Contractor Quality Control (CQC) Plan; GA

The quality control plan shall be prepared in accordance with PARAGRAPH: QUALITY CONTROL PLAN.

Laboratory Quality Management Manual; FIO

The manual as specified in PARAGRAPH: TESTS - TESTING LABORATORIES - CAPABILITY CHECK shall be submitted.

SD-18 Records

Documentation of work; FIO

- a. Construction Quality Control Management Report
- b. CQC Report
- c. Preparatory Phase Checklist
- d. Initial Phase Checklist

Daily records and weekly reports shall be prepared in accordance with
PARAGRAPH: DOCUMENTATION

1.3 PAYMENT

The Contractor shall be responsible for the work for the work of this section, without any direct compensation being made other than the payment received for contract items.

2 PRODUCTS (NOT APPLICABLE)

3 EXECUTION

3.1 GENERAL REQUIREMENTS

The Contractor is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Contract Clause titled "Inspection of Construction." The quality control system shall consist of plans, procedures, and organization necessary to produce an end product which complies with the contract requirements. The system shall cover all construction operations, both on site and off site, and shall be keyed to the proposed construction sequence. The project superintendent will be held responsible for the quality of work on the job and is subject to removal by the Contracting Officer for non-compliance with quality requirements specified in the contract. The project superintendent in this context shall mean the individual with the responsibility for the overall management of the project including quality and production.

3.2 QUALITY CONTROL PLAN

3.2.1 General

The Contractor shall furnish for review by the Government, not later than 15 days after receipt of notice to proceed, the CQC Plan proposed to implement the requirements of the Contract Clause titled "Inspection of Construction." The plan shall identify personnel, procedures, control, instructions, tests, records, and forms to be used. The Government will consider an interim plan for the first 30 days of operation. Construction will be permitted to begin only after acceptance of the CQC Plan or acceptance of an interim plan applicable to the particular feature of work to be started. Work outside of the features of work included in an accepted interim plan will not be permitted to begin until acceptance of a CQC Plan or another interim plan containing the additional features of work to be started.

3.2.2 Content of the CQC Plan

The CQC Plan shall include, as a minimum, the following to cover all construction operations, both on site and offsite, including work by subcontractors, fabricators, suppliers, and purchasing agents:

- a. A description of the quality control organization, including a chart showing lines of authority and acknowledgment that the CQC staff shall implement the three phase control system for all aspects of the work specified. The staff shall include a CQC System Manager who shall report to the project superintendent or someone higher in the Contractor's organization.

- b. The name, qualifications (in resume format), duties, responsibilities, and authorities of each person assigned a CQC function.
- c. A copy of the letter to the CQC System Manager signed by an authorized official of the firm which describes the responsibilities and delegates sufficient authorities to adequately perform the functions of the CQC System Manager, including authority to stop work which is not in compliance with the contract. The CQC System Manager shall issue letters of direction to all other various quality control representatives outlining duties, authorities, and responsibilities. Copies of these letters shall also be furnished to the Government.
- d. Procedures for scheduling, reviewing, certifying, and managing submittals, including those of subcontractors, offsite fabricators, suppliers, and purchasing agents. These procedures shall be in accordance with SECTION 01330: SUBMITTAL PROCEDURES.
- e. Control, verification, and acceptance testing procedures for each specific test to include the test name, specification paragraph requiring test, feature of work to be tested, test frequency, and person responsible for each test. (Laboratory facilities will be approved by the Contracting Officer.)
- f. Procedures for tracking preparatory, initial, and follow-up control phases and control, verification, and acceptance tests including documentation.
- g. Procedures for tracking construction deficiencies from identification through acceptable corrective action. These procedures shall establish verification that identified deficiencies have been corrected.
- h. Reporting procedures, including proposed reporting formats.
- i. A list of the definable features of work. A definable feature of work is a task which is separate and distinct from other tasks, has separate control requirements, and may be identified by different trades or disciplines, or it may be work by the same trade in a different environment. Although each section of the specifications may generally be considered as a definable feature of work, there are frequently more than one definable features under a particular section. This list will be agreed upon during the coordination meeting.

3.2.3 Acceptance of Plan

Acceptance of the Contractor's plan is required prior to the start of construction. Acceptance is conditional and will be predicated on satisfactory performance during the construction. The Government reserves the right to require the Contractor to make changes in his CQC Plan and operations including removal of personnel, as necessary, to obtain the quality specified.

3.2.4 Notification of Changes

After acceptance of the CQC Plan, the Contractor shall notify the Contracting Officer in writing of any proposed change. Proposed changes are subject to acceptance by the Contracting Officer.

3.3 COORDINATION MEETING

After the Preconstruction Conference, before start of construction, and prior to acceptance by the Government of the CQC Plan, the Contractor shall meet with the Contracting Officer or Authorized Representative and discuss the Contractor's quality control system. The CQC Plan shall be submitted for review a minimum of 10 calendar days prior to the Coordination Meeting. During the meeting, a mutual understanding of the system details shall be developed, including the forms for recording the CQC operations, control activities, testing, administration of the system for both on site and offsite work, and the interrelationship of Contractor's Management and control with the Government's Quality Assurance. Minutes of the meeting shall be prepared by the Government and signed by both the Contractor and the Contracting Officer. The minutes shall become a part of the contract file. There may be occasions when subsequent conferences will be called by either party to reconfirm mutual understandings and/or address deficiencies in the CQC system or procedures which may require corrective action by the Contractor.

3.4 QUALITY CONTROL ORGANIZATION

3.4.1 Personnel Requirements

The requirements for the CQC organization are a CQC System Manager and sufficient number of additional qualified personnel to ensure contract compliance. The Contractor shall provide a CQC organization which shall be at the site at all times during progress of the work and with complete authority to take any action necessary to ensure compliance with the contract. All CQC staff members shall be subject to acceptance by the Contracting Officer.

3.4.2 CQC System Manager

The Contractor shall identify as CQC System Manager an individual within the on site work organization who shall be responsible for overall management of CQC and have the authority to act in all CQC matters for the Contractor. The CQC System Manager shall be a graduate engineer, graduate architect, or a graduate of construction management, with a minimum of 2 years experience in related duties on construction similar to this contract. or a person with a minimum of 5 years experience in related duties on construction work. This CQC System Manager shall be on the site at all times during construction and shall be employed by the prime Contractor. The CQC System Manager shall not have duties as project superintendent in addition to quality control. An alternate for the CQC System Manager shall be identified in the plan to serve in the event of the CQC System Manager's absence. The requirements for the alternate shall be the same as for the designated CQC System Manager.

3.4.3 Additional Requirement

In addition to the above qualifications, the CQC System Manager shall have completed the course entitled "Construction Quality Management For Contractors". This course is periodically offered through the Government in the Minneapolis - St. Paul, Minnesota metropolitan area.

3.4.4 Organizational Changes

The Contractor shall maintain the CQC staff at full strength at all times. When it is necessary to make changes to the CQC staff, the Contractor shall revise the CQC Plan to reflect the changes and submit the changes to the Contracting Officer for acceptance.

3.5 SUBMITTALS AND DELIVERABLES

Submittals, if needed, shall be made as specified in SECTION 01330: SUBMITTAL PROCEDURES. The CQC organization shall be responsible for certifying that all submittals and deliverables are in compliance with the contract requirements.

3.6 CONTROL

Contractor Quality Control is the means by which the Contractor ensures that the construction, to include that of subcontractors and suppliers, complies with the requirements of the contract. At least three phases of control shall be conducted by the CQC System Manager for each definable feature of work as follows:

3.6.1 Preparatory Phase

This phase shall be performed prior to beginning work on each definable feature of work, after all required plans/documents/materials are approved/accepted, and after copies are at the work site. This phase shall include:

- a. A review of each paragraph of applicable specifications, reference codes, and standards. A copy of those sections of referenced codes and standards applicable to that portion of the work to be accomplished in the field shall be made available by the Contractor at the preparatory inspection. These copies shall be maintained in the field and available for use by Government personnel until final acceptance of the work.
- b. A review of the contract drawings.
- c. A check to assure that all materials and/or equipment have been tested, submitted, and approved.
- d. Review of provisions that have been made to provide required control inspection and testing.
- e. Examination of the work area to assure that all required preliminary work has been completed and is in compliance with the contract.

- f. A physical examination of required materials, equipment, and sample work to assure that they are on hand, conform to approved shop drawings or submitted data, and are properly stored.
- g. A review of the appropriate activity hazard analysis to assure safety requirements are met.
- h. Discussion of procedures for controlling quality of the work including repetitive deficiencies. Document construction tolerances and workmanship standards for that feature of work.
- i. A check to ensure that the portion of the plan for the work to be performed has been accepted by the Contracting Officer.
- j. Discussion of the initial control phase.
- k. The Government shall be notified at least 48 hours in advance of beginning the preparatory control phase. This phase shall include a meeting conducted by the CQC System Manager and attended by the superintendent, other CQC personnel (as applicable), and the foreman responsible for the definable feature. The results of the preparatory phase actions shall be documented by separate minutes prepared by the CQC System Manager and attached to the daily CQC report. The Contractor shall instruct applicable workers as to the acceptable level of workmanship required in order to meet contract specifications.

3.6.2 Initial Phase

This phase shall be accomplished at the beginning of a definable feature of work. The following shall be accomplished:

- a. A check of work to ensure that it is in full compliance with contract requirements. Review minutes of the preparatory meeting.
- b. Verify adequacy of controls to ensure full contract compliance. Verify required control inspection and testing.
- c. Establish level of workmanship and verify that it meets minimum acceptable workmanship standards. Compare with required sample panels as appropriate.
- d. Resolve all differences.
- e. Check safety to include compliance with and upgrading of the safety plan and activity hazard analysis. Review the activity analysis with each worker.
- f. The Government shall be notified at least 48 hours in advance of beginning the initial phase. Separate minutes of this phase shall be prepared by the CQC System Manager and attached to the daily CQC report. Exact location of initial phase shall be indicated for future reference and comparison with follow-up phases.
- g. The initial phase should be repeated for each new crew to work on site, or any time acceptable specified quality standards are not being met.

3.6.3 Follow-up Phase

Daily checks shall be performed to assure control activities, including control testing, are providing continued compliance with contract requirements, until completion of the particular feature of work. The checks shall be made a matter of record in the CQC documentation. Final follow-up checks shall be conducted and all deficiencies corrected prior to the start of additional features of work which may be affected by the deficient work. The Contractor shall not build upon nor conceal non-conforming work.

3.6.4 Additional Preparatory and Initial Phases

Additional preparatory and initial phases shall be conducted on the same definable features of work if: the quality of on-going work is unacceptable; if there are changes in the applicable CQC staff, on site production supervision or work crew; if work on a definable feature is resumed after a substantial period of inactivity; or if other problems develop.

3.7 TESTS

3.7.1 Testing Procedure

The Contractor shall perform specified or required tests to verify that control measures are adequate to provide a product which conforms to contract requirements. Upon request, the Contractor shall furnish to the Government duplicate samples of test specimens for possible testing by the Government. Testing includes operation and/or acceptance tests when specified. The Contractor shall procure the services of a testing laboratory meeting the requirements listed under PARAGRAPH: CAPABILITY CHECK, or establish a testing laboratory at the project site meeting those requirements. The Contractor shall perform the following activities and record and provide the following data:

- a. Verify that testing procedures comply with contract requirements.
- b. Verify that facilities and testing equipment are available and comply with testing standards.
- c. Check test instrument calibration data against certified standards.
- d. Verify that recording forms and test identification control number system, including all of the test documentation requirements, have been prepared.
- e. Results of all tests taken, both passing and failing tests, shall be recorded on the CQC report for the date taken. Specification paragraph reference, location where tests were taken, and the sequential control number identifying the test shall be given. If approved by the Contracting Officer, actual test reports may be submitted later with a reference to the test number and date taken. An information copy of tests performed by an offsite or commercial test facility shall be provided directly to the Contracting Officer. Failure to submit timely test reports as stated may

result in nonpayment for related work performed and disapproval of the test facility for this contract.

3.7.2 Testing Laboratories

3.7.2.1 Capability Check

The Government reserves the right to check laboratory equipment in the proposed laboratory for compliance with the standards set forth in the contract specifications and to check the laboratory technician's testing procedures and techniques. Laboratories utilized for testing soils, concrete, asphalt, and steel shall meet criteria detailed in [ASTM D 3740](#) and [ASTM E 329](#). The Contractor shall submit a Quality Management Manual meeting the requirements of [ASTM D 3740](#) and [ASTM E 329](#) for each laboratory to be used, including on-site project laboratories.

3.7.2.2 Capability Recheck

If the selected laboratory fails the capability check, the Contractor will be assessed a charge of \$1000.00 to reimburse the Government for each succeeding recheck of the laboratory or the checking of a subsequently selected laboratory. Such costs will be deducted from the contract amount due the Contractor.

3.7.3 On Site Laboratory

The Government reserves the right to utilize the Contractor's control testing laboratory and equipment to make assurance tests and to check the Contractor's testing procedures, techniques, and test results at no additional cost to the Government.

3.7.4 Furnishing or Transportation of Samples for Testing

Costs incidental to the transportation of samples or materials shall be borne by the Contractor. Samples of materials for test verification and acceptance testing by the Government shall be delivered to the Contracting Officer. Coordination for each specific test, exact delivery location, and dates will be made with the Contracting Officer.

3.8 COMPLETION INSPECTION

3.8.1 Punch-Out Inspection

Near the end of the work, or any increment of the work established by a time stated in the Special Clause, "Commencement, Prosecution, and Completion of Work", or by the specifications, the CQC Manager shall conduct an inspection of the work. A punch list of items which do not conform to the approved drawings and specifications shall be prepared and included in the CQC documentation, as required by paragraph DOCUMENTATION. The list of deficiencies shall include the estimated date by which the deficiencies will be corrected. The CQC System Manager or staff shall make a second inspection to ascertain that all deficiencies have been corrected. Once this is accomplished, the Contractor shall notify the Government that the facility is ready for the Government Pre-Final inspection.

3.8.2 Pre-Final Inspection

The Government will perform the pre-final inspection to verify that the facility is complete and ready to be occupied. A Government Pre-Final Punch List may be developed as a result of this inspection. The Contractor's CQC System Manager shall ensure that all items on this list have been corrected before notifying the Government, so that a Final inspection with the customer can be scheduled. Any items noted on the Pre-Final inspection shall be corrected in a timely manner. These inspections and any deficiency corrections required by this paragraph shall be accomplished within the time slated for completion of the entire work or any particular increment of the work if the project is divided into increments by separate completion dates.

3.8.3 Final Acceptance Inspection

The Contractor's Quality Control Inspection personnel, plus the superintendent or other primary management person, and the Contracting Officer's Representative shall be in attendance the final acceptance inspection. Additional Government personnel including, but not limited to, those from Base/Post Civil Facility Engineer user groups, and major commands may also be in attendance. The final acceptance inspection will be formally scheduled by the Contracting Officer based upon results of the Pre-Final inspection. Notice shall be given to the Contracting Officer at least 14 days prior to the final acceptance inspection and shall include the Contractor's assurance that all specific items previously identified to the Contractor as being unacceptable, along with all remaining work performed under the contract, will be complete and acceptable by the date scheduled for the final acceptance inspection. Failure of the Contractor to have all contract work acceptably complete for this inspection will be cause for the Contracting Officer to bill the Contractor for the Government's additional inspection cost in accordance with the contract clause titled "Inspection of Construction".

3.9 DOCUMENTATION

The Contractor shall maintain current records providing factual evidence that required quality control activities and/or tests have been performed. These records shall include the work of subcontractors and suppliers and shall be on an acceptable form that includes, as a minimum, the following information:

- a. Contractor/subcontractor and their area of responsibility.
- b. Operating plant/equipment with hours worked, idle, or down for repair.
- c. Work performed each day, giving location, description, and by whom. When Network Analysis (NAS) is used, identify each phase of work performed each day by NAS activity number.
- d. Test and/or control activities performed with results and references to specifications/drawings requirements. The control phase shall be identified (Preparatory, Initial, Follow-up). List of deficiencies noted, along with corrective action.

- e. Quantity of materials received at the site with statement as to acceptability, storage, and reference to specifications/drawings requirements.
- f. Submittals and deliverables reviewed, with contract reference, by whom, and action taken.
- g. Off-site surveillance activities, including actions taken.
- h. Job safety evaluations stating what was checked, results, and instructions or corrective actions.
- i. Instructions given/received and conflicts in plans and/or specifications.
- j. Contractor's verification statement.

These records shall indicate a description of trades working on the project; the number of personnel working; weather conditions encountered; and any delays encountered. These records shall cover both conforming and deficient features and shall include a statement that equipment and materials incorporated in the work and workmanship comply with the contract. The original and one copy of these records in report form shall be furnished to the Government daily within 24 hours after the date covered by the report, except that reports need not be submitted for days on which no work is performed. As a minimum, one report shall be prepared and submitted for every 7 days of no work and on the last day of a no work period. All calendar days shall be accounted for throughout the life of the contract. The first report following a day of no work shall be for that day only. Reports shall be signed and dated by the CQC System Manager. The report from the CQC System Manager shall include copies of test reports and copies of reports prepared by all subordinate quality control personnel.

3.10 SAMPLE FORMS

The following sample forms are enclosed at the end of this section:

- a. Construction Quality Control Management Report
- b. CQC Report
- c. Preparatory Phase Checklist
- d. Initial Phase Checklist

3.11 NOTIFICATION OF NONCOMPLIANCE

The Contracting Officer will notify the Contractor of any detected noncompliance with the foregoing requirements. The Contractor shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the Contractor at the work site, shall be deemed sufficient for the purpose of notification. If the Contractor fails or refuses to comply promptly, the Contracting Officer may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the Contractor.

3.12 IMPLEMENTATION OF GOVERNMENT RESIDENT MANAGEMENT SYSTEM FOR CONTRACTOR QUALITY CONTROL OF CONTRACT

The Contractor shall utilize the Contractor Quality Control (CQC) module of the Resident Management System (RMS). The RMS-CQC module is a computer program which is executable on IBM compatible computers with 80386, 80486 and Pentium processors. This module includes a daily CQC reporting form which must be used. The module shall be completed to the satisfaction of the Contracting Officer prior to any contract payment and shall be updated as required. The Contractor shall complete module elements including:

- Prime Contractor staffing
- Subcontractor information, including name, address, trade, and point of contact
- Submittal information, including description, activity number, review period, expected procurement period
- Quality control testing
- Definable features of work
- Installed property listing
- Transfer property listing
- Pay activity and activity information
- Planned cumulative progress earnings
- Scheduled employee education required by the specifications
- Insurance expiration dates

3.12.1 Revisions

The Contractor shall acknowledge receipt of Government comments relating to the RMS-CQC module by specific number reference on his Daily CQC report. The daily CQC report shall also report when corrections are implemented.

CQC Report

1. Work performed today: (Indicate location and description of work performed by prime and/or subcontractors by letter in table above).
2. Results of control activities: (Indicate whether P - Preparatory, I - Initial, or F - Follow-up Phase. When a P or I meeting is conducted, complete attachment 1-A or 1-B, respectively. When network analysis system is used, identify work by use of I-J numbers)
3. Test performed as required by plans and/or specifications:
4. Material received:

CQC Report (Cont'd)

5. Submittals Reviewed:

(a) Submittal No. (b) Spec/Plan Reference (c) By Whom (d) Action

6. Off-site surveillance activities, including action taken:

7. Job safety: (Report violations; Corrective instructions given; Corrective actions taken).

8. Remarks: (Instructions received or given. Conflict(s) in Plans and/or Specifications)

Contractor's Verification: On behalf of the Contractor, I certify this report is complete and correct, and all materials and equipment used and work performed during this reporting period are in compliance with the contract plans and specifications, to the best of my knowledge, except as noted above.

CQC System Manager

PREPARATORY PHASE CHECKLIST

Contract No.: _____ Date: _____
Definable Feature: _____ Spec Section: _____

Government Rep Notified _____ Hours in Advance Yes _____ No _____

I. Personnel Present.

	Name	Position	Company/Government
1.			
2.			
3.			
4.			
5.			
6.			
7.			

(List additional personnel on reverse side)

II. Submittals.

1. Review submittals and/or submittal log 4288. Have all submittals been approved? Yes _____ No _____

If No, what items have not been submitted?

- a.
 - b.
 - c.
2. Are all materials on hand? Yes _____ No _____
- a.
 - b.
 - c.

3. Check approved submittals against delivered material. (This should be done as material arrives).

Comments:

III. Material Storage.

Are materials stored properly? Yes _____ No _____
If No, what action is taken?

Preparatory Phase Checklist (Cont'd)

IV. Specifications.

1. Review each paragraph of specifications.
2. Discuss procedure for accomplishing the work.
3. Clarify any differences.

V. Preliminary Work.

Ensure preliminary work is correct.
If not, what action is taken?

VI. Testing.

1. Identify test to be performed, frequency, and by whom.
2. When required?
3. Where required?
4. Review Testing Plan.
5. Has test facilities been approved?

VII. Safety.

1. Review applicable portion of EM 385-1-1.
2. Activity Hazard Analysis approved? Yes _____ No

VIII. Corps of Engineers comments during meeting.

CQC System Manager

INITIAL PHASE CHECKLIST

Contract No.: _____
Definable Feature: _____

Date: _____

Government Rep Notified: _____ Hours in Advance Yes _____ No

I. Personnel Present:

	Name	Position	Company/Government
1.			
2.			
3.			
4.			
5.			
6.			

(List additional personnel on reverse side)

II. Identify full compliance with procedures identified at preparatory.
Coordinate plans, specifications, and submittals.
Comments:

III. Preliminary Work. Ensure preliminary work is complete and correct.
If not, what action is taken?

IV. Establish Level of Workmanship.

1. Where is work located?
2. Is a sample panel required? Yes _____ No
3. Will the initial work be considered as a sample? Yes _____ No
(If yes, maintain in present condition as long as possible).

V. Resolve any Differences.
Comments:

Review job conditions using EM 385-1-1 and job hazard analysis.
Comments:

CQC System Manager

SECTION 01500

TEMPORARY CONSTRUCTION FACILITIES

02/01

1 GENERAL

1.1 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-04 Drawings

Site Plan; FIO.

The Contractor shall prepare a site plan indicating the proposed location and dimensions of any area to be fenced and used by the Contractor, the number of trailers to be used, avenues of ingress/egress to the fenced area and details of the fence installation. Any areas which may have to be graveled to prevent the tracking of mud shall also be identified. The Contractor shall also indicate if the use of a supplemental or other staging area is desired.

Government Field Office; FIO.

The Contractor shall submit a preliminary plan and description of the mobile office facilities which it proposes to furnish prior to proceeding with procurement thereof.

1.2 AVAILABILITY AND USE OF UTILITY SERVICES

1.2.1 Temporary Electrical Facilities

The Contractor shall be responsible for coordination and costs for electrical power required for the Contractor's operations, including all costs for utility company hookup, installation/dismantling of transformers and distribution lines. In general, the Contractor shall establish its own service connection with the utility company. If the Contractor proposes to use an existing Government service

connection, a request shall be submitted for approval to verify the Contractor's use will not interfere with operation of the facilities, and the monthly service fees will be paid for in whole (including Government power consumption) by the Contractor.

1.2.2 Sanitation

The Contractor shall provide and maintain within the construction area field-type sanitary facilities in accordance with EM 385-1-1. These facilities shall include but not be limited to toilet, washing, and drinking water facilities.

1.2.3 Telephone

The Contractor shall make arrangements and pay all costs for their telephone facilities desired. Government personnel will not take or deliver messages for the Contractor.

1.3 PROTECTION AND MAINTENANCE OF TRAFFIC

During construction the Contractor shall provide access and temporary relocated roads as necessary to maintain traffic. The Contractor shall maintain and protect traffic on all affected roads during the construction period except as otherwise specifically directed by the Contracting Officer. Measures for the protection and diversion of traffic, including the provision of watchmen and flag men, erection of barricades, placing of lights around and in front of equipment and the work, and the erection and maintenance of adequate warning, danger, and direction signs, shall be as required by the State and local authorities having jurisdiction. The traveling public shall be protected from damage to person and property. The Contractor's traffic on roads selected for hauling material to and from the site shall interfere as little as possible with public traffic. The Contractor shall investigate the adequacy of existing roads and the allowable load limit on these roads.

1.3.1 Haul Roads

The Contractor shall, at its own expense, construct access and haul roads necessary for proper prosecution of the work under this contract. Haul roads shall be constructed with suitable grades and widths; sharp curves, blind corners, and dangerous cross traffic shall be avoided. The Contractor shall provide necessary lighting, signs, barricades, and distinctive markings for the safe movement of traffic. The method of dust control, although optional, shall be adequate to ensure safe operation at all times. Location, grade, width, and alignment of construction and hauling roads shall be subject to approval by the Contracting Officer. Lighting shall be adequate to assure full and clear visibility for full width of haul road and work areas during any night work operations. Upon completion of the work, haul roads designated by the Contracting Officer shall be removed.

1.3.2 Barricades

The Contractor shall erect and maintain temporary barricades to limit public access to hazardous areas. Such barricades shall be required whenever safe public access to paved areas such as roads, parking areas or sidewalks is prevented by construction activities or as otherwise necessary to ensure the safety of both pedestrian and vehicular traffic. Barricades shall be securely placed, clearly visible with adequate illumination to provide sufficient visual warning of the hazard during both day and night.

1.4 CONTRACTOR'S TEMPORARY FACILITIES

1.4.1 Administrative Field Offices

The Contractor shall provide and maintain administrative field office facilities within the construction area at the designated site. Government office and warehouse facilities will not be available to the Contractor's personnel.

1.5 PLANT COMMUNICATION

Whenever the Contractor has the individual elements of its plant so located that operation by normal voice between these elements is not satisfactory, the Contractor shall install a satisfactory means of communication, such as telephone or other suitable devices. The devices shall be made available for use by Government personnel.

1.6 TEMPORARY PROJECT SAFETY FENCING

As soon as practicable, but not later than 15 days after the date established for commencement of work, the Contractor shall furnish and erect temporary project safety fencing at the work site. The safety fencing shall be a high visibility orange colored, high density polyethylene grid or approved equal, a minimum of 42 inches high, supported and tightly secured to steel posts located on maximum 10 foot centers, generally located to encompass the active construction areas. The safety fencing shall be maintained by the Contractor during the life of the contract and, upon completion and acceptance of the work, shall become the property of the Contractor and shall be removed from the work site.

1.7 PAYMENT

The Contractor shall be responsible for the work of this Section, without any direct compensation being made other than the payment received for contract items.

2 PRODUCTS

2.1 BULLETIN BOARD, PROJECT SIGN, AND PROJECT SAFETY SIGN

2.1.1 Bulletin Board

Immediately upon beginning of work, the Contractor shall provide a weatherproof glass-covered bulletin board not less than 36 by 48 inches in size for displaying the Equal Employment Opportunity poster, a copy of the wage decision contained in the contract, Wage Rate Information poster, and other information approved by the Contracting Officer. The bulletin board shall be located at the project site in a conspicuous place easily accessible to all employees, as approved by the Contracting Officer. Legible copies of the aforementioned data shall be displayed until work is completed. Upon completion of work the bulletin board shall be removed by and remain the property of the Contractor.

2.1.2 2.1.2 Project and Safety Signs

The Contractor shall furnish and erect a Project sign and a Safety sign in a location selected by the Contracting Officer at the project site within 15 days after receipt of the notice to proceed. The requirements for the signs and their content shall be as shown on the drawings at the end of this section. The data required by the safety sign shall be corrected daily. Signs shall be maintained throughout the construction period, and upon completion of the project, the signs shall be removed from the site. The PROJECT DESCRIPTION and PROJECT NAME shall be as follows:

PROJECT DESCRIPTION: Flood Control Project
Grand Forks, North Dakota

PROJECT NAME: English Coulee Diversion

2.2 GOVERNMENT FIELD OFFICE

The Contractor shall provide and maintain for the life of the contract an approved mobile office (mobile home style) meeting the following requirements as to space and facilities for the exclusive use of the government. The unit shall be ready for occupancy within 30 calendar days after notice to proceed. The unit shall provide a minimum of 400 square feet of floor area and shall include two private offices, each having approximately 100 square feet of floor area and a storage closet. The unit shall have two entrance doors. The remaining space is to be utilized as one large office, a toilet room, a chest of drawers and a storage area for coats, etc. The unit shall be provided with a toilet room consisting of a stool and lavatory and an electric heater. The unit interior headroom shall be no less than a nominal 8'-0".

2.2.1 Location

The Contractor shall locate the portable mobile home type field office at or near the Contractor's field office site at a location approved by the Contracting Officer. Four parking spaces shall be reserved for Government vehicles at the Government trailer.

2.2.2 Construction.

The Government field office shall be similar in quality and age as the Contractor's field office, if provided. Exterior and interior finishes shall be free from color fade, chipping, or peeling. The unit shall be set level on blocking, be provided with plywood skirting, and be anchored to the ground for protection against wind damage. Exterior doors shall be provided with screens and outside hasps for

use with padlocks. The unit shall be electrically wired for fluorescent ceiling lighting fixtures and weather proof porch lights at each entrance door, along with switches, duplex convenience outlets, and a master switch and fuse box as required. The entire unit shall be adequately insulated with fiberglass insulation and vapor barrier. Dead air crawl space shall be properly ventilated. Heating and air conditioning facilities shall be provided to maintain an

ambient inside temperature of 68 degrees F. The unit shall be weather proof, and furnished with a forced air type heating plant, either gas or oil with hot and cold air ducts adequate to supply even heat throughout the unit. Air conditioning shall be furnished with capacity as recommended by the manufacturer for the trailer size. A central air conditioning system shall be provided.

2.2.3 Utilities

The Contractor shall be responsible for service fees in connection with electrical power and heating (natural gas or oil service). The Contractor shall also be responsible for service fees in connection with the water supply, sanitary waste system, and telephone as indicated below. When available, city water and sewer system connections are preferred.

- a. Sanitary Facilities. In the absence of a city sewer connection, holding tanks shall be provided. The lavatory shall discharge into an outside underground holding tank with a capacity of not less than 400 gallons and a vented drain. The Contractor shall provide year-round pumping of the holding tank as required. Subject to approval, a serviced chemical toilet may be used.
- b. Potable Water. In the absence of a city water connection, a potable water storage tank of not less than 300 gallons capacity shall be furnished with adequate supply filling connections and screened vent, and shall be stainless steel or plastic with a drain cock of not less than inch size. Upon completion of the job, the Contractor shall remove the underground holding tank and backfill the excavation. The Contractor shall provide potable water for the storage tank if service connections are not provided.
- c. Telephone. The Contractor shall be responsible for installation of telephone at the Government office. The telephone hook-up should be placed on a separate account from the Contractor's phone so that it can be transferred to the Government after installation. The Government will be responsible for the telephone service to the Government field office after installation.

2.2.4 Furnishings.

The following furnishings shall be provided for the Government office:

- a. A hot and cold drinking water dispenser. The Contractor shall provide drinking water for the dispenser for the duration of the contract.
- b. Bulletin board, minimum size 6 square feet.

- c. A cabinet shall be supplied along a side wall with minimum nominal dimensions 2 feet wide, 3 feet high and 6 feet long. The cabinet shall include a finished wood or laminate counter. Two shelves, one above and one below the cabinet, shall be provided for storage.
- d. Sign. The Contractor shall securely attach to the unit exterior and adjacent to the main entrance door, as approved, a 24 inch by 36 inch sign with the Corps of Engineers castle insignia with wording as specified.
- e. Stoop. A stoop with 8 inch risers and handrails shall be provided at each entrance door.
- f. Windows. All windows shall be provided with sash and security screens along with shades, blinds or similar features that allow for the complete coverage of the windows on the inside.
- g. Lavatory. A 5 by 24 inch metal shelf and 15 by 20 inch wood or metal framed plate glass mirror shall be provided above the lavatory.

2.2.5 Furniture

Office furniture shall be coordinated with respect to style, color, and upholstery. The following furniture shall be provided:

- a. Two desks either wood or steel, double pedestal type, top approximately 60 inches by 34 inches, with lock.
- b. Two swivel armchairs with tilting seat and adjustable spring back.
- c. Two filing cabinets, four-drawer legal size, with lock.
- d. One drafting table stool, non-tilting, rotary type with back and circular footrest.
- e. One drafting table, metal and/or wood, 36 inches by 48 inches.
- f. One conference table, 3/4 inch thick by 72 inches long by 36 inches wide with solid core construction top.
- g. Eight chairs for conference table, either wood or steel construction, with cushioned seat and backrest.
- h. One rack for hanging full size drawings.

2.2.6 Office Equipment

The following equipment shall be provided:

- a. One desk top facsimile (FAX) machine with modem BPS speeds of 9600,7200,4800, and 2400; an effective scanning width of 11.7 inches and line scanning density of 8 pels/mm horizontal and an effective scanning width of 7.7 inches and line scanning density of 3.85 lines/mm vertical. Initially supply four reams of paper(500 sheets per ream).

b. One desk top copying machine with an indirect dual component dry tone process. Paper copy sizes shall be a maximum of 11 inches by 17 inches and a minimum of 4.25 inches by 5.5 inches. The machine shall have a halogen lamp light source and an automatic sheet feed (single cassette). Initially supply four reams (500 sheets per ream) of white copying paper and furnish a complete maintenance service contract/agreement for the machine.

c. One personal computer, minimum 433 megahertz, 4 gigabyte hard drive, 64 megabyte of RAM, CD ROM Reader; 17" monitor (26 dot pitch maximum), mouse and keyboard. The software provided with the computer will be Microsoft "Windows 95" or better and Microsoft "Office Professional" or approved equivalent.

d. One laser printer, HP 4000N or approved equivalent.

2.2.7 Maintenance.

The Contractor shall maintain the field office for the life of the contract. The Contractor shall be responsible for maintaining and paying for all costs associated with the following services:

a. Supplies. Toilet paper, paper toweling, paper and supplies for the FAX and copy machines shall be provided. Supply water for the drinking water dispenser. Supply water for the lavatory if a service connection is not provided for potable water.

b. Maintenance of office equipment. Include a maintenance service contract/agreement for operation of the Fax and Copy machines.

c. Janitorial Service. The Contractor shall provide daily janitorial service and provide all janitorial and sanitary supplies as well as trash removal service.

d. Snow removal. Maintenance of site access including snow removal service is the responsibility of the Contractor.

e. Utilities. The Contractor is responsible for maintaining and paying all costs associated with utility services including water supply, sanitary waste system, electrical power and natural gas or oil service.

2.2.8 Additional Requirements

- a. The Contractor shall locate the portable mobile home type field office as directed by the Contracting Officer.
- b. Four (4) parking spaces shall be reserved for Government vehicles at the Government trailer. If the Contractor requires more space, the Contractor shall provide it at his own expense.

3 EXECUTION

3.1 CLEANUP

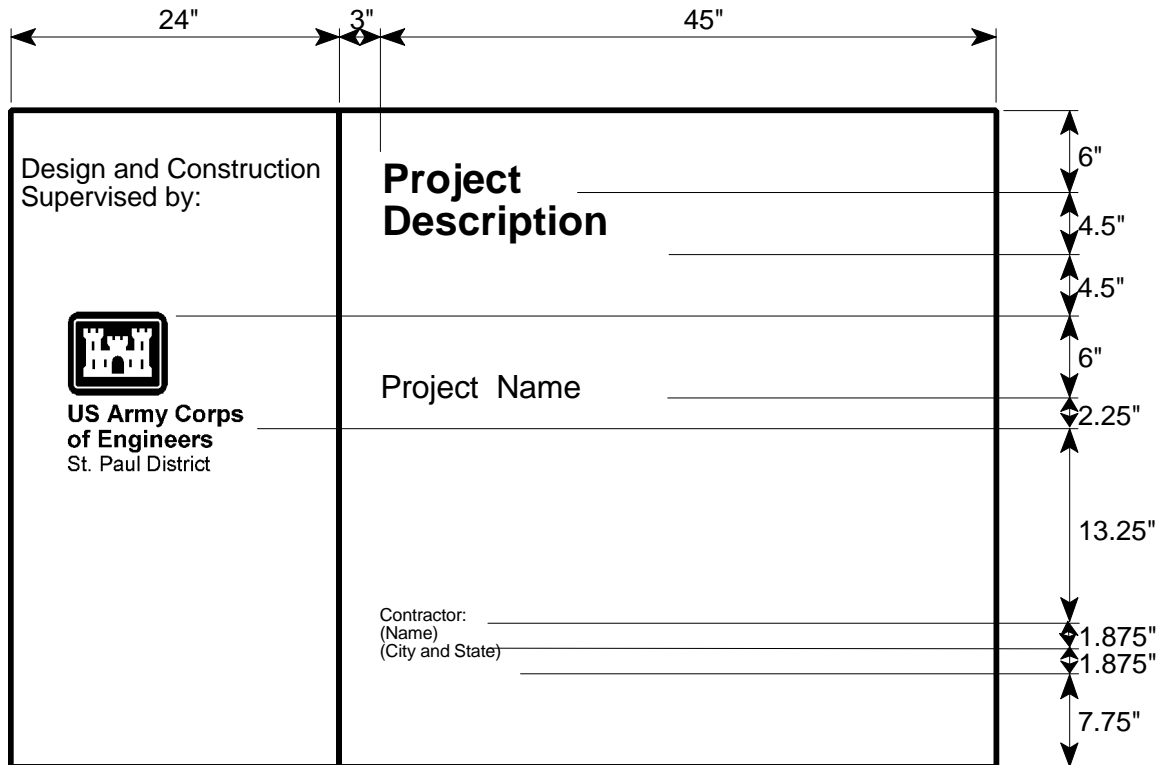
Construction debris, waste materials, packaging material and the like shall be removed from the work site. Any dirt or mud which is tracked onto paved or surfaced roadways shall be cleaned away. Materials resulting from demolition activities which are salvageable shall be stored within the fenced area described above or at the supplemental storage area. Stored material not in trailers, whether new or salvaged, shall be neatly stacked when stored.

3.2 RESTORATION OF STORAGE AREA

Upon completion of the project and after removal of trailers, materials, and equipment from within the fenced area, the fence shall be removed and will become the property of the Contractor. Areas used by the Contractor for the storage of equipment or material, or other use, shall be restored to the original or better condition. Gravel used to traverse grassed areas shall be removed and the area restored to its original condition, including top soil and seeding as necessary.

PROJECT SIGN

The graphic format for this 4' x 6' sign panel follows the legend guidelines and layout as specified below. The large 4' x 4' section of the panel on the right is to be white with black legend. A 2' x 4' decal provided by the Corps shall be placed on the left side of the sign panel.



Project Description:

One to three line project title legend describes the work being done under this contract.
Color: Black; Typeface: 3" Helvetica Bold; Maximum line length: 42".

Project Name:

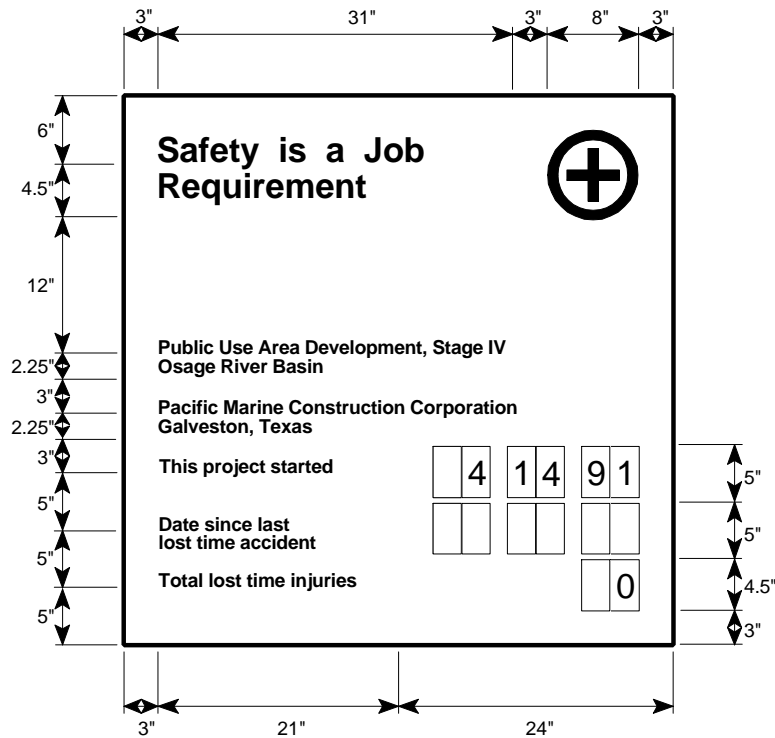
One to three line identification of project or facility.
Color: Black; Typeface: 1.5" Helvetica Bold; Maximum line length: 42".
Cross-align the first line of PROJECT NAME with the first line of the Corps Signature as shown.

Contractor:

One to five line identification of prime contractors including: type (architect, general contractor, etc.), corporate or firm name, city, state.
Color: Black; Typeface: 1.25" Helvetica Bold; Maximum line length: 21".

All typography is flush left and ragged right, upper and lower case with initial capitals only as shown. Letter and word spacing to follow Corps Standards (EP 310-1-6a and 6b).

SAFETY SIGN



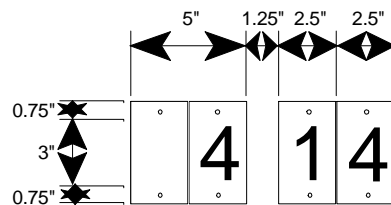
All typography is flush left and rag right, upper and lower case with initial capitals only as shown. Letter and word spacing to follow Corps Standards (EP 310-1-6a and 6b).

Legend Group 1: Standard two-line title "Safety is a Job Requirement" with (8" od.) Safety Green First Aid logo. Typeface: 3" Helvetica Bold; Color: Black.

Legend Group 2: One- to two-line project title legend describes the work being done under this contract and name of host project. Typeface: 1.5" Helvetica Regular; Color: Black; Maximum line length: 42".

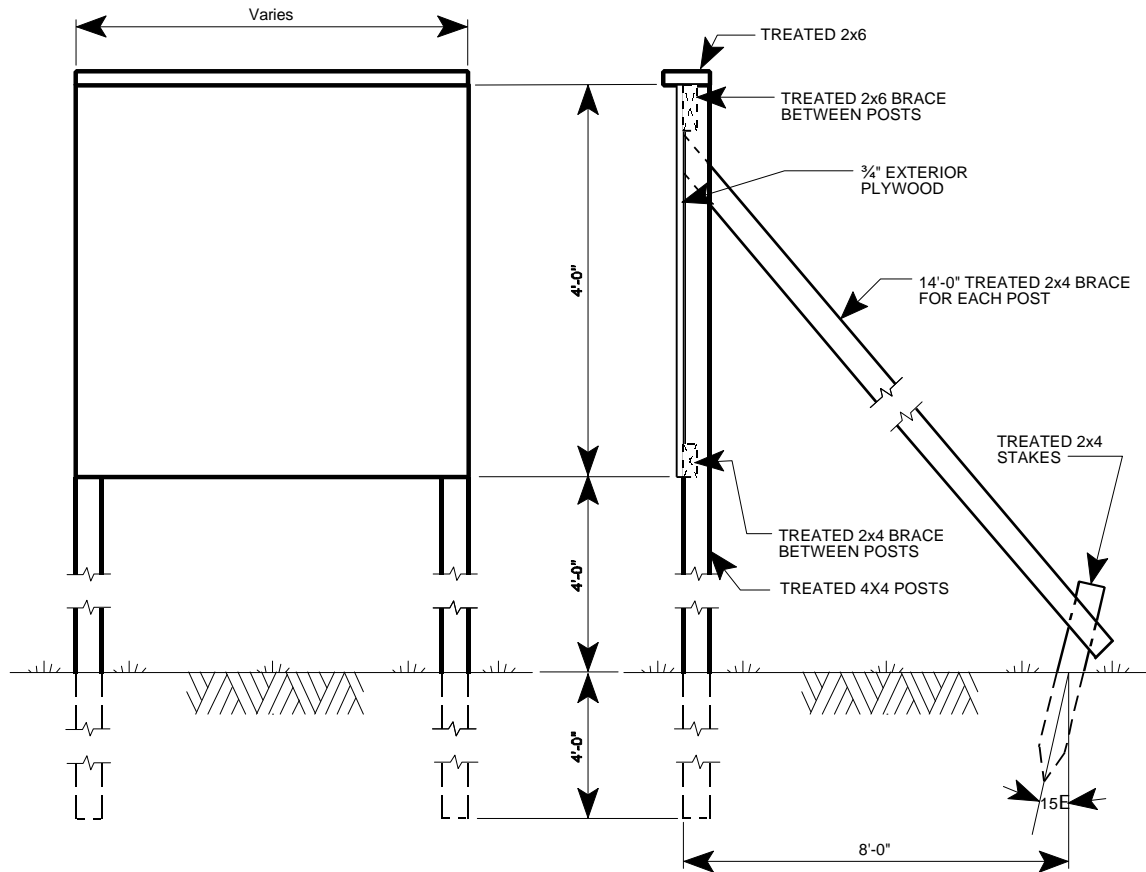
Legend Group 3: One- to two-line identification: name of prime contractor and city, state address. Typeface: 1.5" Helvetica Regular; Color: Black; Maximum line length: 42".

Legend Group 4: Standard safety record captions as shown. Typeface: 1.25" Helvetica Regular; Color: Black.



Replaceable numbers are to be mounted on white 0.060 aluminum plates and screw-mounted to background. Typeface: 3" Helvetica Regular; Color: Black; Plate size: 2.5" x 4.5".

SIGN ERECTION DETAILS



SECTION 01568

NORTH DAKOTA POLLUTANT DISCHARGE ELIMINATION SYSTEM
06/2000

1 GENERAL

1.1 GENERAL

This section covers best management practices to be implemented for prevention of storm water pollution as required by the National Pollutant Discharge Elimination System (NPDES). The North Dakota Department of Health is responsible for administering permits for NPDES in the state of North Dakota. The Government has determined that the project work included under this contract requires NPDES permitting. The requirements herein supplement those covered in SECTION 01410: ENVIRONMENTAL PROTECTION.

1.1.1 Definitions

The following terms apply to this specification and the general permit, unless redefined in subsequent paragraphs.

- a. "Plan" means the Temporary Erosion and Sediment Control Plan.
- b. "EPA" means the United States Environmental Protection Agency.
- c. "Department" means the North Dakota Department of Health, Division of Water Quality.
- d. "NPDES" means the National Pollutant Discharge Elimination System.
- e. "NDPDES" means the North Dakota Pollutant Discharge Elimination System.
- f. "Owner" as referred to in the general permit shall mean the Federal Government.
- g. "Permittees" as referred to in the general permit shall mean the Federal Government and Contractor.
- h. "General Permit" means the general permit authorization to discharge storm water associated with a construction activity under the National Pollutant Discharge Elimination System/State Disposal System Permit Program.
- i. "BMP" means Best Management Practices.
- j. "NDDOH" means the North Dakota Department of Health.

1.1.2 Contract Drawings

The following features are shown on or can be determined from the contract drawings:

- a. The drainage patterns and approximate slopes anticipated after the major grading activities.
- b. Areas of soil disturbance.
- c. The location(s) where stabilization practices are expected to occur.
- d. Typical details showing suggested Best Management Practices (BMP's) for erosion and sediment control.
- e. Waters of the State.
- f. Final site stabilization.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ENVIRONMENTAL PROTECTION AGENCY (EPA)

EPA/832/R-92/005 Storm Water Management for Construction Activities - Developing Pollution Prevention Plans and Best Management Practices

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION

NDDOT 708 Standard Specifications for Road and Bridge Construction (1997 Edition), Erosion Control

NDDOT 856 Standard Specifications for Road and Bridge Construction (1997 Edition), Erosion Control Blankets

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Temporary Erosion And Sediment Control Plan; FIO.

A specific Temporary Erosion and Sediment Control Plan shall be submitted in accordance with PARAGRAPH: PERMIT COMPLIANCE AND ADDITIONAL REQUIREMENTS.

SD-18 Records

Notice of Intent (NOI); GA.

A copy of the NOI (NDDOH Form SFN 19145) shall be submitted to the Contracting Officer at the same time it is transmitted to the state.

Notice of Termination; FIO.

A copy of the notice of termination shall be submitted to the Contracting Officer at the same time it is transmitted to the state.

1.4 PERMIT COMPLIANCE AND ADDITIONAL REQUIREMENTS

The Contractor shall comply with the requirements of Permit No. NDR03-0000. The following define additional requirements and clarify which requirements of the Permit are to be performed by either the Contractor, the Government, or both.

1.4.1 Schedule

No contract project construction activities which requires an NPDES permit may commence until the NDPDES permit is valid.

1.4.2 Temporary erosion and sediment control plan

The contract drawings show a typical details of suggested best management practices (BMP's) for erosion and sediment control taken from EPA/832/R-92/005. The BMP's, together with applicable portions of the site drawings and specifications form an initial plan for temporary erosion and sediment control. The Contractor shall finalize and implement the plan. The finalized plan, together with documentation, shall be in accordance with the general permit NDR03-0000. The plan shall be maintained at the site and made available to federal, state, and local officials as requested. The Contractor shall determine the specific BMP's for erosion and sediment control (including the types, locations, and installation scheduling of erosion and sediment controls). These BMP's and corresponding material specifications and shop drawings shall be included in the Plan.

1.4.3 Notice of Intent (NOI)

The NOI must be signed by the Government and the Contractor. A blank copy of the form (SFN 19145) is included at the end of this section. Immediately after contract award, the Contractor shall complete the form and plan, obtain signature by the Government, and submit the form with a copy of the Plan to the state. The NOI shall be post marked at least 30 days in advance of any ground breaking activities. The Contractor is responsible for payment of the application fee.

1.4.4 Permanent erosion and sediment control plan

The Government has developed the Permanent Erosion and Sediment Control Plan and will maintain availability of the plan to federal, state, and local officials as required in the General Permit.

1.5 MEASUREMENT AND PAYMENT

The Contractor shall be responsible for the work of this section, without any direct compensation being made other than the payment received for contract items.

2 PRODUCTS

2.1 SILT FENCE

Silt fence shall be manufactured and installed as shown on drawings. On level sites with minimal potential for sediment loading, the wire fabric may be omitted.

2.2 STRAW BALES

Straw shall be baled from oats, wheat, rye, barley, rice, or other coarse fiber vegetation that will percolate water. Hay baled from grass, alfalfa and clover is not acceptable.

2.3 OTHER PRODUCTS

Any products proposed for use that are not included on drawing Z2-22 shall be described fully, with catalog cuts and manufacturer's instructions for use, in the temporary erosion and sediment control plan. Other products, if proposed in the final plan, shall meet the following requirements:

Erosion control blankets shall meet NDDOT 856

3 EXECUTION

As between the Government and the Contractor, the Contractor shall be responsible for fulfilling the obligations of the general permit for the following sections:

Part II-C: Stormwater Pollution Prevention Plan
Part III: Effluent Limitations, Monitoring, and Recording
Requirements

3.1 IMPLEMENTATION

The Contractor shall install the sediment and erosion control system in accordance with the plan submitted to the Contracting Officer. The BMP's shall be modified if inspection indicates distress to the system or reveals unforeseen circumstances, or if directed by the Contracting Officer. Any updates to the plan shall be recorded. Permanent stabilization shall be initiated as soon as practicable in any portion of the site where construction activities are complete.

3.2 MAINTENANCE

The Contractor shall be responsible for implementing and managing the erosion and sediment control BMP's before and during the construction activities; and ensure that the Plan will be implemented and stay in effect until the work has been completed, the entire work site has undergone final stabilization, and a Notice of Termination has been submitted to the Contracting Officer and the state permitting authority.

3.3 RECORDS

The Contractor shall record on CQC reports: (1) dates when major stripping and grading activities occur, (2) dates when construction activities temporarily or permanently cease on a portion of the site, (3) when permanent stabilization practices are initiated, and (4) activities associated with inspection and maintenance.

3.4 ATTACHMENTS

NDPDES General Permit NDR03-0000 with Notice of Intent (NDDOH Form SFN 19145) and Appendices 27 Pages



**NOTICE OF INTENT TO OBTAIN COVERAGE UNDER NDPDES
GENERAL PERMIT FOR STORMWATER DISCHARGES
ASSOCIATED WITH CONSTRUCTION ACTIVITY**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF WATER QUALITY

SFN 19145 (09/99)

FOR DEPT. USE ONLY

Application No.

Date Received

GENERAL INFORMATION

Name of Construction Project			
Name of Company, Individual, or Organization Seeking Authorization to Discharge			Telephone No. ()
Mailing Address	City	State	Zip Code
Status of the Construction Site: <input type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Other (Specify):			

NATURE OF DISCHARGE

Brief Description of Nature of Construction Project:							
Project Start Date				Estimated Area of Total Disturbance in Acres			
Estimated Completion Date							
Facility Location	Street			City			
	OR	1/4	1/4	Section	Township	Range	County
	OR	Latitude o I II		Longitude o I II		County	
Receiving Waters	<input type="checkbox"/> Natural Surface Drainage			Name or Description of Receiving Waters			
	OR	<input type="checkbox"/> Municipal Storm Sewer		Name of City			
				Ultimate Receiving Waters			

RETURN COMPLETED APPLICATION TO: North Dakota Department of Health Division of Water Quality 1200 Missouri Ave., Rm. 203 PO Box 5520 Bismarck, ND 58506-5520 Telephone: 701-328-5210	I certify I am familiar with NDCC 61-28-08, and with the information contained in this application. To the best of my knowledge and belief, the information in this application is true, complete, and accurate.	
	Printed Name of Applicant(s)	Title
	Signature of Applicant(s)	Application Date

(Attach additional pages if needed)



**NOTICE OF TERMINATION TO CANCEL COVERAGE UNDER
(NDPDES) GENERAL PERMIT FOR STORMWATER DISCHARGES**
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF WATER QUALITY

SFN 19146 (09/99)

FOR DEPT. USE ONLY

Date Received: ____/____/____

GENERAL INFORMATION

Name of Construction Project			Permit Number NDR03- _____
Name of Company, Individual, or Organization Which Received Authorization to Discharge			Telephone Number ()
Mailing Address	City	State	Zip Code

LOCATION

SITE LOCATION	Street			City		
	OR	1/4 1/4	Sec- tion	Township	Range	County
	OR	Latitude 0 I II		Longitude 0 I II		County

CERTIFICATION STATEMENT

I certify under penalty of law that for the construction project and permit described above:

As of _____, disturbed soils at the identified site have been finally stabilized, seventy percent restored vegetative coverage as compared to preexisting vegetation, and temporary erosion control measures have been removed, or that all stormwater discharges associated with construction activity from the identified site, authorized by a NDPDES general permit have been eliminated.

I understand that by submitting this Notice of Termination, that I am no longer authorized to discharge stormwater associated with construction activity by the general permit, and that discharging pollutants in stormwater to waters of North Dakota is unlawful under North Dakota Century Code 61-28 where the discharge is not authorized by a NDPDES permit.

Return Completed Application to: North Dakota Department of Health Division of Water Quality P.O. Box 5520 Bismarck, ND 58506-5520 Telephone: (701)328-5210	I certify I am familiar with NDCC 61-28-08 and with the information contained in this application. To the best of my knowledge and belief the information in this application is true, complete and accurate.	
	Printed Name of Applicant(s)	Title
	Signature of Applicant(s)	Application Date

(Attach additional page if needed)

NORTH DAKOTA DEPARTMENT OF HEALTH NDPDES PROGRAM

Construction Stormwater Pollution Prevention Plan Guidance Forms



CONTENTS

- | | | |
|----|---------------------------------|------------|
| 1. | PROJECT DESCRIPTION | (SF 19388) |
| 2. | SITE MAP DEVELOPMENT | |
| 3. | SIGNIFICANT MATERIALS INVENTORY | (SF 19387) |
| 4. | BEST MANAGEMENT PRACTICES | (SF 19389) |
| 5. | SPECIAL CONSIDERATIONS | (SF 19390) |
| 7. | SIGNATORY CERTIFICATION | (SF 19137) |



PROJECT DESCRIPTION
North Dakota Department of Health
Division of Water Quality

SFN 19388 (09/99)

Project Name
Project Type
Project Location
Estimate of Project Size

Description of the Nature of Activity

Description of Existing Soils, Fill Material, and Erodibility of Such Soils

Proposed Timetable for Construction Activities

Name of Receiving Waters

SITE MAP DEVELOPMENT

The site map should be suitably scaled and drawn to show the following required information:

MAP FEATURES

- 1) Construction site boundaries and area(s) of soil disturbance.
- 2) The location of springs, streams, wetlands, and other surface waters.
- 3) The location of areas used for storage of building materials, soils, or waste materials.
- 4) The locations of proposed and existing stormwater controls.
- 5) Stormwater runoff/run on drainage patterns.
- 6) Section, township, range, or lines of latitude and longitude.





APPENDIX C

[illegible]



BEST MANAGEMENT PRACTICES FOR EROSION AND SEDIMENT CONTROL
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF WATER QUALITY
SFN 19389 (09/99)

APPENDIX C

NONSTRUCTURAL PRACTICES:

- | | |
|--|--|
| <input type="checkbox"/> Temporary Seeding | <input type="checkbox"/> Permanent Seeding |
| <input type="checkbox"/> Mulching | <input type="checkbox"/> Grassed Waterways |
| <input type="checkbox"/> Filter Strips | <input type="checkbox"/> Tree Planting |
| <input type="checkbox"/> Erosion Blankets | <input type="checkbox"/> Sod Stabilization |

Additional Practices:

STRUCTURAL PRACTICES:

- | | |
|--|--|
| <input type="checkbox"/> Terraces/Contours | <input type="checkbox"/> Drain Inlet Protection |
| <input type="checkbox"/> Pipe Slope Drains | <input type="checkbox"/> Brush Barriers |
| <input type="checkbox"/> Straw Bale Dikes | <input type="checkbox"/> Temporary Drain Diversion |
| <input type="checkbox"/> Silt Fences | <input type="checkbox"/> Drainage Swales |
| <input type="checkbox"/> Infiltration Trenches or Basins | <input type="checkbox"/> Sediment Traps |
| <input type="checkbox"/> Earth Dikes | <input type="checkbox"/> Temporary Sediment Basins |
| <input type="checkbox"/> Rock Outlet Protection | <input type="checkbox"/> Subsurface Drains |
| <input type="checkbox"/> Check Dams | <input type="checkbox"/> Retaining Walls |

Additional Practices:

OTHER BEST MANAGEMENT PRACTICES
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF WATER QUALITY
SFN 19390 (09/99)

APPENDIX C

[illegible][illegible][illegible]



OTHER BEST MANAGEMENT PRACTICES
NORTH DAKOTA DEPARTMENT OF HEALTH
DIVISION OF WATER QUALITY
SFN 19390-2 (09/99)

APPENDIX C

Description of Spill Prevention and Response Procedures:

Description of Post Construction Controls:

Description of Procedures for Site Inspections and Maintenance



SIGNATORY CERTIFICATION
North Dakota Department of Health
Division of Water Quality
SFN 19137 (10-97)

APPENDIX C

Permit Number:

INSTRUCTIONS: The following statement shall be signed by a responsible corporate officer, general partner, principle executive officer or ranking elected official. The statement may be signed by a duly authorized representative of the person above in accordance with Part IV-E of the permit.

CERTIFICATION

"I _____, certify under penalty of law that I have personally examined and am familiar with the information submitted herein. Based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment."

Printed Name of Applicant

Title

Signature of Applicant

Date

ADDITIONAL SIGNATURES

INSTRUCTIONS: If more than one signature is required on the Stormwater Pollution Prevention Plan, use the space provided.

Date	Printed Name	Signature	Title	Company Name

[illegible]



Name of Construction Project			
Name of Company, Individual, or Organization Seeking Authorization to Discharge			Telephone No. { }
Mailing Address	City	State	Zip Code
Status of the Construction Site <input type="checkbox"/> Private <input type="checkbox"/> Federal <input type="checkbox"/> State <input type="checkbox"/> Other (Specify):			

NATURE OF DISCHARGE

Brief Description of Nature of Construction Project:						
Project Start Date				Estimated Area of Total Disturbance in Acres		
Estimated Completion Date						
Facility Location	Street			City		
	OR	1/4	1/4	Section	Township	Range
	OR	Latitude ° ' "		Longitude ° ' "	County	
Receiving Waters	<input type="checkbox"/> Natural Surface Drainage		Name or Description of Receiving Waters			
	OR	<input type="checkbox"/> Municipal Storm Sewer	Name of City			
			Ultimate Receiving Waters			

RETURN COMPLETED APPLICATION TO: North Dakota Department of Health Division of Water Quality 1200 Missouri Ave., Rm. 203 PO Box 5520 Bismarck, ND 58506-5520 Telephone: 701-328-5210	I certify I am familiar with NDCC 61-28-08, and with the information contained in this application. To the best of my knowledge and belief, the information in this application is true, complete, and accurate.	
	Printed Name of Applicant(s)	Title
	Signature of Applicant(s)	Application Date

(Attach additional pages if needed)

**NOTICE OF TERMINATION TO CANCEL COVERAGE UNDER
(NDPDES) GENERAL PERMIT FOR STORMWATER DISCHARGES**
 NORTH DAKOTA DEPARTMENT OF HEALTH
 DIVISION OF WATER QUALITY

FOR DEPT. USE ONLY

Date Received: ____/____/____

Permit No.: NDR03-0000

Effective Date: October 1, 1999

Expiration Date: September 30, 2004

AUTHORIZATION TO DISCHARGE UNDER THE
NORTH DAKOTA POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with Chapter 33-16-01 of the North Dakota Department of Health rules as promulgated under Chapter 61-28 (North Dakota Water Pollution Control Act) of the North Dakota Century Code,

facilities both qualifying for and satisfying the requirements identified in Part I of this permit

are authorized to discharge stormwater associated with **CONSTRUCTION ACTIVITY**

to waters of the state

in accordance with effluent limitations, monitoring requirements, and other conditions set forth in Parts I-VI, hereof.

This permit and the authorization to discharge shall expire at midnight,

September 30, 2004.

Dennis R. Fewless, Director
Division of Water Quality

Date

PART I - PERMIT COVERAGE

A. Permit Area

This permit applies to all areas within the jurisdiction of the state of North Dakota.

B. Eligibility and Limitations

1. Stormwater Discharges Covered by this Permit

This permit applies to all new and existing discharges of stormwater associated with construction activity from any of the following:

- a. Construction activity including: clearing, grading, and excavation activities.
- b. Examples of eligible construction projects include but are not limited to: road building/rebuilding, site development, housing subdivision development, utility trenching, ect.
- c. Areas that are dedicated to producing earthen materials (such as soils, sand and gravel) for use at a construction site(s) as approved by the Department.

2. Stormwater Discharges *Not* Covered by this Permit

The following are not provided coverage under this permit:

- a. Stormwater discharges associated with industrial activity from any source other than construction activities of those approved operations as in Part I.B.1.b..
- b. Stormwater discharges associated with mining activities.
- c. Stormwater discharges associated with industrial activity form discharge points subject to existing effluent limitations guidelines.
- d. Stormwater discharges that the Department has shown to be contributing to a violation of a water quality standard.

C. Notice of Intent to Obtain Coverage

1. Deadlines

The operator of the construction activity shall submit a Notice of Intent (NOI) (form attached as Appendix A) to obtain coverage for stormwater discharges and a SWPP plan (see Part II.C.3) for the construction project, 30 days prior to the start of construction. An operator is the company, individual, or organization who has day to day supervision and control of activities occurring at the construction site. This can be the owner, developer, the general contractor or, in some circumstances, the agent of one of these parties.

2. Contents of the NOI

The Notice of Intent (NOI) shall contain, at a minimum, the following information:

- a. Name of the construction site.
- b. The status of the construction site (federal, state, private, or other entity).
- c. Name of the company, individual, or organization seeking authorization.
- d. County and location of the construction site, including latitude and longitude or Township, Range, section, and 1/4 section.
- e. A brief description of the construction activity.
- f. The anticipated starting date and the anticipated date of completion for the project.
- g. The estimated area of total disturbance in acres.
- h. Name of receiving water(s) or the name of the receiving municipal storm sewer system and receiving water(s).
- i. The signature of the applicant(s), signed in accordance with Part IV.E of this permit.

3. Submission

Completed NOIs and SWPP plans shall be submitted, by mail or hand delivery, to:

North Dakota Department of Health
Division of Water Quality
1200 Missouri Avenue
PO Box 5520
Bismarck, ND 58506-5520

D. Permit Certification

1. Automatic Coverage

If the applicant does not receive a request for additional information or a notification of denial from the Department within 10 days of receipt of the application by the Department, authorization to discharge in accordance with the conditions of this permit shall be deemed granted.

2. Request for Additional Information

The Department shall have the right to request additional data and/or deny the authorization for any particular discharge.

3. Individual or Alternative General Permits

- a. The Department may, at any time and by written notification only, require any person authorized by this permit to apply for and obtain either an individual NDPDES permit or to seek coverage under an alternative NDPDES general permit.
- b. Any person covered by this general permit may request to be excluded from such coverage by either applying for an individual NDPDES permit or filing a Notice of Intent to be covered under an alternative NDPDES general permit.

- c. When an individual NDPDES permit is issued to a person otherwise subject to this permit or the person is approved for coverage under an alternative NDPDES general permit, the applicability of this permit to the individual permittee is automatically terminated upon the effective date of the individual permit or the date of approval for coverage under the alternative general permit.
- d. When an individual NDPDES permit is denied to a person otherwise subject to this permit, or the person is denied for coverage under an alternative NDPDES general permit, the applicability of this permit remains in effect, unless otherwise specified by the Department.

4. Local Authority

This permit does not preempt or supersede the authority of local agencies to prohibit, restrict, or control discharges of stormwater to storm sewer systems or other water courses within their jurisdiction.

E. Continuation of Coverage

Facilities covered under this permit can continue coverage under the renewed permit, provided a satisfactory request is made. Any request to retain coverage under a renewal of this permit shall be made in writing to the Department at least 15 days prior to the expiration date of this permit. If requested by the Department, a new NOI shall be submitted.

F. Transfer of Ownership or Control

- 1. Coverage under this permit may be transferred to a new permittee if the existing and new permittee notifies the Department, in writing, at least 48 hours before the transfer of ownership or control; and the notice includes a written agreement between the existing and new permittee containing a specific date of transfer of permit responsibility, coverage and liability between them. If requested by the Department, a NOT shall be submitted by the existing permittee and a NOI submitted by the new permittee.
- 2. The new owner or operator must comply with all regulations in this permit and with all provisions of the existing SWPP plan until such time as the existing SWPP plan is amended or replaced by a new SWPP plan. If the personnel responsible for implementing the SWPP plan change, these changes must be amended to the SWPP plan within 30 days of transfer of ownership or control.

G. Notice of Termination

1. Final Stabilization

When a site has been finally stabilized, a Notice of Termination (see Appendix B) shall be submitted to the Department. Final stabilization is reached when all construction activities that are authorized by this permit have been completed, and uniform vegetative cover has been established with a density of at least 70 percent of pre-disturbance levels, or equivalent permanent, physical erosion reduction methods have been employed.

2. Content of NOT

The Notice of Termination (NOT) shall contain, at a minimum, the following information:

- a. Permit number.
- b. Name of construction site.
- c. Operator's name, mailing address and phone number.
- d. County and location of the construction site, including latitude and longitude or Township, Range, section, and 1/4 section.
- e. Certification that the site has been finally stabilized.
- f. Signature of the applicant(s), signed in accordance with Part IV.E of this permit.

PART II - SPECIAL CONDITIONS

A. Prohibition of Non-stormwater Discharges

All discharges covered by this permit shall be composed entirely of stormwater. The discharge of materials other than stormwater must be identified as a potential source of pollution in the SWPP plan (Part II.C.3). Unless otherwise determined by the Department, discharges other than stormwater must be in compliance with an appropriate NDPDES permit issued for the discharge.

B. Releases in Excess of Reportable Quantities

This permit does not relieve the permittee of the reporting requirements of 40 CFR 110, 40 CFR 117, and 40 CFR 302. Any release of a hazardous substance, including a release in a stormwater discharge, must be reported to the agencies identified in Part IV.F. The discharge of hazardous substances in stormwater discharges shall be minimized in accordance with the applicable SWPP plan for the facility. Should a reportable quantity release occur, the SWPP plan shall be revised to prevent the recurrence of such a release.

C. Stormwater Pollution Prevention Plans

1. All facilities covered by this permit shall prepare and implement a Stormwater Pollution Prevention (SWPP) plan that is subject to Department approval. Guidance forms for preparing a SWPP plan are located in Appendix C. The main objective of the plan shall be to identify potential sources of pollution which may reasonably be expected to affect the quality of stormwater discharges associated with construction activity; and to describe Best Management Practices (BMPs) which will be used to reduce the pollutants in the stormwater discharges associated with construction activity. The implementation of these objectives will be used to meet the terms and conditions of this permit.

2. Plan Preparation and Implementation Deadlines

- a. The SWPP plan shall be submitted with the NOI, 30 days prior to the start of construction. Implementation of the plan shall be at the start of construction. The SWPP plan may be submitted and/or implemented at later dates only upon written request by the permittee showing just cause and subsequent written approval by the Department.

- b. SWPP plans approved and implemented under the previous version of this permit shall remain in effect under this permit. Operations covered under an existing SWPP plan shall amend the SWPP plan as described in Part II.C.2.d of this permit.
- c. If the permittee must also operate under an approved state or local sediment and erosion control plan, or any other stormwater management plan, it will be the permittee's responsibility to ensure that the SWPP plan for this permit complies with all other required plans. A SWPP plan is not a substitute for a stormwater management plan developed under other regulatory programs. It is acceptable for the plan to reflect the stormwater management measures developed under other regulatory programs and to incorporate the applicable portions of such programs by reference.
- d. The permittee shall amend the SWPP plan whenever there is a change in design, construction, operation, or maintenance, which has a significant effect on the potential for the discharge of pollutants to the water of the state, or if the SWPP plan proves to be ineffective in achieving the general objectives of controlling pollutants in stormwater discharges associated with construction activity.

3. SWPP Plan Contents

Key elements for SWPP plans shall include, at a minimum, the following information:

a. *Site Description*

A site description shall contain, at a minimum, the following information:

- i) A description of the nature of the construction activity.
- ii) The proposed timetable for major activities.
- iii) Estimates of the total area of the site, and the area of the site that is expected to undergo clearing, excavation, or grading.
- iv) A description of the fill material to be used, the existing soils at the site, and the erodibility of such soils.
- v) The name of any receiving water(s) and the size, type and location of any outfall or; for discharges to a municipal separate storm sewer, the name of the municipal owner of the system, the location of the storm sewer discharge, and the name of the ultimate receiving waters.

b. *Site Map*

A site map that indicates, at a minimum, the following information:

- i) Construction site boundaries and area of soil disturbance.
- ii) The location of springs, streams, wetlands, and other surface waters.
- iii) The location of areas used for storage of building materials, soils, or wastes.
- iv) The locations of proposed and existing stormwater controls.
- v) Stormwater runoff drainage patterns.
- vi) Township, range, section or lines of latitude and longitude.

c. *Significant Material Inventory*

The location and description of any potential pollution sources, such as vehicle fueling, fertilizers, or chemicals, etc. Generally, significant materials are raw materials, finished products, and byproducts. The term also includes materials necessary for an operation which have the potential to be released with stormwater. The description should identify methods of storage, disposal, and outdoor processing involving significant materials.

d. *Best Management Practices (BMPs)*

The plan shall clearly describe the relationship between the phases of construction and the implementation and maintenance of BMPs. The description of BMPs shall include the following components:

i) Erosion and Sediment Controls

a) Nonstructural

A description of nonstructural practices designed to preserve existing vegetation where practicable and re-vegetate open areas as soon as practicable after construction activity ceases. In developing vegetative practices, the permittee shall consider: temporary and permanent seeding, mulching, sod stabilization, filter strips, grassed waterways, erosion blankets, geotextiles, preservation of mature vegetation and tree or shrub planting.

b) Structural

A description of structural practices which indicates how, to the degree practicable, the permittee will divert flows from exposed soil, store flows, or otherwise limit runoff from exposed areas of the site. In developing structural practices, the permittee shall consider the relevance of: straw bale dikes, silt fences, earth dikes, drainage swales, check dams, subsurface drains, pipe slope drains, rock outlet protection, drain inlet and outlet protection, temporary drain diversion, sediment traps, temporary sediment basins, infiltration trenches or basins, and retaining walls.

ii) Other Controls

a) A description of methods to reduce the tracking of sediment onto public or private roads.

b) If applicable, a description of methods for handling and disposing of contaminated soils.

c) A description of methods for recovering sediments.

d) A description of spill prevention and response procedures for areas where potential spills can occur.

e. *Post-construction Controls*

A description of the post-construction control measures to be implemented until final stabilization is achieved.

f. *Inspection and Maintenance*

A description of procedures which will be used to inspect and maintain, in good and effective operating condition, the stormwater controls identified in the SWPP plan. Site inspections must be in accordance with Part III of this permit.

g. *Signature*

All SWPP plans must be signed in accordance with Part IV-E of this permit.

D. Additional Terms and Conditions

Stormwater discharges from construction sites shall not cause pollution, contamination, or degradation to waters of the state.

1. Visible or measurable erosion which leaves the construction site is prohibited. Visible or measurable erosion is defined as:
 - a. Deposits of mud, dirt, sediment, or similar material exceeding one-half cubic foot in volume in any area of 100 square feet or less on public or private streets, adjacent property, or into the storm and surface water either by deliberate actions or as a result of erosion; or
 - b. Evidence of concentrated flows of water over bare soils, turbid or sediment-laden flows, or evidence of on-site erosion on bare soil slopes, where runoff of water is not filtered or captured on the site using the techniques in the approved SWPP plan; or
 - c. Earth slides, mud flows, earth sloughing, or other earth movement which leaves the property.
2. If any measurable quantity of sediment leaves the site because of structural failure or lack of design capacity of the BMPs, the sediment shall be placed back on the site or properly disposed of, as soon as is prudent. Under no conditions shall the sediment be washed into the storm sewers or drainage ways.
3. Concrete wash water shall not be discharged to waters of the state or to storm sewer systems.
4. Bulk storage structures for petroleum products and other chemicals shall have adequate protection so as to contain all spills and prevent any spilled materials from entering waters of the state.

5. No chemicals are to be added to the discharge unless permission for the use of a specific chemical is granted by the Department. In granting the use of such chemicals, special conditions and monitoring may need to be addressed through an individual NDPDES permit or an alternative NDPDES general permit.
6. All stormwater discharges must comply with the requirements, policies, or guidelines, of municipalities and other local agencies. Any discharges of stormwater to storm drainage systems or other water courses under their jurisdiction, including applicable requirements in municipal stormwater management programs developed to comply with NDPDES permits, must comply with their local requirements.

PART III - EFFLUENT LIMITATIONS, MONITORING, AND RECORDING REQUIREMENTS

A. Effluent Limitations

The quality of stormwater discharges associated with construction activity shall reflect the best which is attainable through the proper implementation of all items in the SWPP plan for the construction site.

B. Monitoring requirements

The permittee shall inspect the construction site to ensure that the stormwater controls identified in the SWPP plan are effective and properly maintained. The construction site perimeter, disturbed areas, and areas used for material storage shall be inspected for evidence of, or the potential for, erosion, sediment accumulation, sediment material residue and spills. The following guidelines shall be used for monitoring the effectiveness of the SWPP plan:

1. Site inspections shall be performed by or under the direction of the permittee at least once every 7 calendar days and within 24 hours after any storm event of greater than 0.50 inches of rain per 24-hour period. The permittee shall have the option of maintaining a rain gauge at their site or utilizing the nearest National Weather Service precipitation gauge station. Any gauge station used shall be located within 10 miles of the stormwater discharge.
2. During storm events or periods of snow melt, when runoff occurs daily, all SWPP plan controls shall be inspected by or under the supervision of the permittee daily.
3. Stormwater runoff discharges shall be visibly monitored at the above frequency to evaluate the effectiveness of the SWPP plan controls. If any measurable quantities of sediment are leaving the property, corrective action shall be taken as soon as is prudent to reduce the discharge of sediments.
4. There may be times when the performance of the site inspection may not be practical during an inspection period. Adverse climatic conditions, such as flooding, high winds, tornadoes, electrical storms, etc., or impracticable climatic conditions, such as drought, extended frozen conditions, etc., may prohibit inspections. Should this occur the permittee must make a record of the description of why the inspection(s) could not be performed in lieu of the actual inspection data. Any available documentation of the events which did not allow for the inspection should also be available.

C. **Recording Requirements**

Inspection results shall be summarized and recorded on a Site Inspection Record (SIR, see Appendix D). The SIRs shall be maintained on-site, in accordance with Part IV.D of this permit. The SIR shall contain, at a minimum, the following information:

1. The date and time of inspection.
2. The name of the person performing the inspection.
3. The date and duration (in hours) of the storm event.
4. The rainfall measurements or estimates (in inches) of the storm event.
5. The duration of time between this event and the end of the most recent storm event which was 0.50 inches or greater in precipitation.
6. All incidents of erosion, sediment accumulation, material residue, or spills shall be documented and noted on the SIR. The report shall include the location and description of the incident, estimated quantity of material or size of area affected, and a brief explanation of potential cause and remedial action taken.
7. Any measurable quantities of sediment released off the site, shall be recorded with a brief explanation as to the measures taken to prevent future releases as well as any measures taken to clean up the sediment that has left the site.
8. If no storm event occurs during an inspection period, "no discharge" shall be recorded on the SIR.

PART IV - COMPLIANCE RESPONSIBILITIES

- A. **Duty to Comply.** The permittee must comply with all conditions of this permit. Any permit noncompliance constitutes a violation of the Act and is grounds for enforcement action; for permit termination, revocation and reissuance, or modification; or for denial of a permit renewal application. The permittee shall give the Department advance notice of any planned changes at the permitted facility or of any activity which may result in permit noncompliance.
- B. **Operation and Maintenance.** The permittee shall at all times maintain in good working order, and operate as efficiently as possible, all treatment or control facilities or systems installed or used by the permittee to achieve compliance with the terms and conditions of this permit and with the requirement of the SWPP plans. If necessary to achieve compliance with the conditions of this permit, this shall include the operation and maintenance of backup or auxiliary systems.
- C. **Duty to Provide Information.** The permittee shall furnish to the Department, upon request, copies of records required to be kept by this permit. When a permittee becomes aware that it failed to submit any relevant facts or submitted incorrect information in a permit application or any report, it shall promptly submit such facts or information.
- D. **Records Retention.** All records and information (including calibration and maintenance) required by this permit shall be kept for at least three years or longer if requested by the Department or EPA.

- E. **Signatory Requirements.** All applications, reports, or information submitted to the Department shall be signed and certified by the permittee in accordance with the following criteria:
1. All permit applications shall be signed by a responsible corporate officer, a general partner, or a principal executive officer or ranking elected official, in addition to contractors and subcontractors involved in the construction activity or SWPP plan.
 2. All reports required by the permit and other information requested by the Department shall be signed by a person described above or by a duly authorized representative of that person. A person is a duly authorized representative only if:
 - a. The authorization is made in writing by a person described above and submitted to the Department; or
 - b. The authorization specifies either an individual or a position having responsibility for the overall operation of the regulated facility, such as the position of plant manager, superintendent, position of equivalent responsibility, or an individual or position having overall responsibility for environmental matters.
 3. If an authorization under Part IV.E.2 is no longer accurate for any reason, a new authorization satisfying the above requirements must be submitted to the Department prior to or together with any reports, information, or applications to be signed by an authorized representative.
 4. Any person signing a document under this section shall make the following certification:

“I certify under penalty of law that I have personally examined and am familiar with the information submitted herein. Based on my inquiry of those individuals immediately responsible for obtaining the information, I believe the submitted information is true, accurate, and complete. I am aware that there are significant penalties for submitting false information, including the possibility of fine and imprisonment.”
- F. **Immediate Notification.** The permittee shall report any noncompliance of discharge which may seriously endanger health or the environment as soon as possible, but no later than twenty-four (24) hours from the time the permittee first became aware of the circumstance. The report shall be made to the EPA, Region VIII, Emergency Response Branch, at (303) 293-1788 and the State of North Dakota, Division of Emergency Management, at (701) 328-2121. In addition, a written submission to both the Department and EPA shall be provided within five days of the time that the permittee became aware of the circumstances. The submission shall contain a description of the noncompliance and its cause; the period of noncompliance, including exact dates and times; the estimated time noncompliance is expected to continue if it has not been corrected; and steps taken or planned to reduce, eliminate, and prevent recurrence of the noncompliance.
- G. **Bypassing.** Any bypass is prohibited except where unavoidable to prevent loss of life, personal injury, or severe property damage, and there were no feasible alternatives to the bypass. The permittee shall provide notification of unanticipated bypasses as may be required by Part IV.F, Immediate Notification. If, for other reasons, a bypass is considered necessary, a request to bypass shall be submitted, at least 15 days in advance if possible, to the Department. No bypass of this type shall occur until permission has been obtained from the Department.

- H. **Upset Conditions.** An upset constitutes an affirmative defense to an action brought for noncompliance with technology-based permit effluent limitations if the requirements of the following paragraph are met. No determination made during administrative review of claims that noncompliance was caused by upset, and before an action for noncompliance, is final administrative action subject to judicial review.

A permittee who wishes to establish the affirmative defense of upset shall demonstrate, through properly signed, contemporaneous operating logs, or other relevant evidence, that:

1. An upset occurred and the permittee can identify its cause(s);
2. The permitted facility was, at the time, being properly operated;
3. The permittee submitted notice of the upset as may be required under Part IV.F, Immediate Notification; and
4. The permittee complied with any remedial measures required under Part IV.I, Duty to Mitigate.

In any enforcement proceeding, the permittee seeking to establish the occurrence of an upset has the burden of proof.

- I. **Duty to Mitigate.** The permittee shall take all reasonable steps to minimize or prevent any discharge in violation of this permit which has a reasonable likelihood of adversely affecting human health or the environment. The permittee, at the Department's request, shall provide accelerated or additional monitoring as necessary to determine the nature and impact of any discharge.
- J. **Removed Materials.** Collected screening, grit, solids, sludge, or other pollutants removed in the course of treatment shall be buried or disposed of in such a manner to prevent any pollutant from entering waters of the state or creating a health hazard.

PART V - GENERAL REQUIREMENT

- A. **Right of Entry.** The permittee shall allow Department and EPA representatives, at reasonable times and, if requested, upon the presentation of credentials, to inspect any facilities or equipment (including monitoring and control equipment), to sample discharges, and to have access to and copy any records required to be kept by this permit. For facilities which discharge to a municipal or other separated storm sewer, this shall also pertain to authorized representatives of the municipal operator or the separate storm sewer receiving the discharge.
- B. **Availability of Reports.** Except for data determined to be confidential under 40 CFR, Part 2, all reports prepared in accordance with the terms of this permit shall be available for public inspection at the offices of the Department. As required by the Act, permit applications, permits, and effluent data shall not be considered confidential.

- C. **Transfers.** This permit is not transferable except upon the filing of a Statement of Acceptance by the new party and subsequent Department approval. The Department may require the new operator to apply for and obtain an individual NDPDES permit as stated in Part I.D. The current permit holder should inform the new controller, operator, or owner of the existence of this permit and also notify the Department of the possible change.
- D. **New Limitations or Prohibitions.** The permittee shall comply with any effluent standards or prohibitions established under Section 306(a), Section 307 (a), or Section 405 of the Act for any pollutant (toxic or conventional) present in the discharge or removed substances within the time identified in the regulations, even if the permit has not yet been modified to incorporate the requirements.
- E. **Permit Actions.** This permit may be modified, revoked and reissued, or terminated for cause. Also, if there is evidence indicating potential or realized impacts on water quality due to any stormwater discharge associated with construction activity covered by this permit, the owner or operator of such discharge may be required to obtain an individual permit or coverage under an alternative general permit in accordance with Part I.D of this permit. The filing of a request by the permittee for a permit modification, revocation and reissuance, or termination, or a notification of planned changes or anticipated noncompliance does not stay any permit conditions.
- F. **Need to Halt or Reduce.** It shall not be a defense for a permittee in an enforcement action that it would have been necessary to halt or reduce the permitted activity in order to maintain compliance with the conditions of this permit.
- G. **State Laws.** Nothing in this permit shall be construed to preclude the institution of legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation preserved under Section 510 of the Act.
- H. **Oil and Hazardous Substance Liability.** Nothing in this permit shall be construed to preclude the institution of any legal action or relieve the permittee from any responsibilities, liabilities, or penalties established pursuant to any applicable state law or regulation preserved under Section 311 of the Act.
- I. **Property Rights.** The issuance of this permit does not convey any property rights of any sort, nor any exclusive privileges; nor does it authorize any injury to private property or any invasion of personal rights; nor any infringement of federal, state, or local laws or regulations.
- J. **Severability.** The provisions of this permit are severable, and if any provision of this permit or the application of any provision of this permit to any circumstance is held invalid, the application of such provision to other circumstances and the remainder of this permit shall not be affected thereby.

PART VI - DEFINITIONS

"the Act" means the Clean Water Act.

"BMP" or "Best Management Practices" means schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the state. BMPs also include treatment requirements, operating procedures and practices to control plant site runoff, spillage or leaks, sludge or waste disposal, or drainage from raw material storage.

"Bypass" means the intentional diversion of waste streams from any portion of a treatment facility.

"Construction" means any activity associated with construction, including but not limited to: clearing, grading, and excavation.

"Department" means the North Dakota State Department of Health and Consolidated Laboratories, Division of Water Quality.

"Grab" sample, for monitoring requirements, means a single "dip and take" sample collected at a representative point in the discharge stream.

"Non-stormwater discharges" means discharges other than stormwater. The term includes both process and non-process sources. Process waste water sources that require a separate NDPDES permit include, but are not limited to industrial processes, domestic facilities and cooling water. Non-stormwater sources that may be addressed in this permit include, but are not limited to: fire hydrant flushing and testing, potable water line flushing, infrequent building and pavement washdowns without detergents, uncontaminated foundation drains, springs, lawn watering and air conditioning condensate.

"Severe property damage" means substantial physical damage to property, damage to treatment facilities which causes them to become inoperable, or substantial and permanent loss of natural resources which can reasonably be expected to occur in the absence of a bypass. Severe property damage does not mean economic loss caused by delays in production.

"Significant materials" includes, but is not limited to: raw materials; fuels; materials such as solvents, detergents, and plastic pellets; finished materials such as metallic products; raw materials used in food processing or production; hazardous substances designated under Section 101(14) of CERCLA; any chemical the facility is required to report pursuant to Section 313 of Title III of SARA; fertilizers; pesticides; and waste products such as ashes, slag, and sludge that have the potential to be released with stormwater discharges.

"Significant spills" includes, but is not limited to: releases of oil or hazardous substances in excess of reportable quantities under Section 311 of the Clean Water Act (see 40 CFR 110.10 and CFR 117.21) or Section 102 of CERCLA (see 40 CFR 302.4).

"Stormwater" means stormwater runoff, snow melt runoff, and surface runoff and drainage.

"Stormwater associated with industrial activity" means the discharge from any conveyance which is used for collecting and conveying stormwater and which is directly related to manufacturing, processing, or raw materials storage areas at an industrial plant. The term does not include discharges from facilities or activities excluded from the NDPDES program. For the categories of industries identified in

subparagraphs (i) through (x) of this subsection, the term includes, but is not limited to, stormwater discharges from industrial plant yards; immediate access roads and rail lines used or traveled by carriers of raw materials, manufactured products, waste material, or byproducts used or created by the facility; material handling sites; refuse sites; sites used for the application or disposal of process waste waters (as defined at 40 CFR 401); sites used for the storage and maintenance of material handling equipment; sites used for residual treatment, storage, or disposal; shipping and receiving areas; manufacturing buildings; storage areas (including tank farms) for raw materials, and intermediate and finished products; and areas where industrial activity has taken place in the past and significant materials remain and are exposed to stormwater. For the categories of industries identified in subparagraph (xi), the term includes only stormwater discharges from all areas listed in the previous sentence (except access roads) where material handling equipment or activities, raw materials, intermediate products, final products, waste materials, byproducts, or industrial machinery are exposed to stormwater. For the purposes of this paragraph, material handling activities include: storage, loading and unloading, transportation, or conveyance of any raw material, intermediate product, finished product, byproduct or waste product. The term excludes areas located on plant lands separate from the plant's industrial activities, such as office buildings and accompanying parking lots, as long as the drainage from the excluded areas is not mixed with stormwater drained from the above described areas. Industrial facilities (including industrial facilities that are federally or municipally owned or operated that meet the description of the facilities listed in this paragraph [(i)-(xi)]) include those facilities designated under 122.26(a)(1)(v). The following categories of facilities are considered to be engaging in "industrial activity" for purposes of this subsection:

- (i) Facilities subject to stormwater effluent limitations guidelines, new source performance standards, or toxic pollutant effluent standards under 40 CFR, Subchapter N (except facilities with toxic pollutant effluent standards which are exempted under category (xi) of this paragraph);
- (ii) Facilities classified as Standard Industrial Classifications 24 (except 2434), 26 (except 265 and 267), 28 (except 283), 29, 311, 32 (except 323), 33, 3441, 373;
- (iii) Facilities classified as Standard Industrial Classifications 10 through 14 (mineral industry), including active or inactive mining operations [except for areas of coal mining operations meeting the definition of a reclamation area under 40 CFR 434.11(1)], and oil and gas exploration, production, processing, or treatment operations, or transmission facilities that discharge stormwater contaminated by contact with, or that has come into contact with, any overburden, raw material, intermediate products, finished products, byproducts, or waste products located on the site of such operations; inactive mining operations are mining sites that are not being actively mined, but which have an identifiable owner/operator;
- (iv) Hazardous waste treatment, storage, or disposal facilities, including those that are operating under interim status or a permit under Subtitle C of RCRA;
- (v) Landfills, land application sites, and open dumps that have received any industrial wastes (waste that is received from any of the facilities described under this subsection), including those that are subject to regulation under Subtitle D of RCRA;
- (vi) Facilities involved in the recycling of materials, including metal scrap yards, battery reclaimers, salvage yards, and automobile junkyards, including but limited to those classified as Standard Industrial Classification 5015 and 5093;
- (vii) Steam electric power generating facilities, including coal handling sites;

(viii) Transportation facilities classified as Standard Industrial Classifications 40, 41, 42, 44, and 45, which have vehicle maintenance shops, equipment cleaning operations, or airport deicing operations. Only those portions of the facility that are either involved in vehicle maintenance (including vehicle rehabilitation, mechanical repairs, painting, fueling, and lubrication), equipment cleaning operations, airport deicing operations, or which are otherwise identified under paragraphs (i) - (vii) or (ix) - (xi) of this subsection are associated with industrial activity;

(ix) Treatment works treating domestic sewage or any other sewage sludge or wastewater treatment device or system used in the storage treatment, recycling, and reclamation of municipal or domestic sewage, including lands dedicated to the disposal of sewage sludge that are located within the confines of the facility, with design flow of 1.0 mgd or more, or required to have an approved pretreatment program under 40 CFR 403. Not included are farm lands, domestic gardens, or lands used for sludge management where sludge is beneficially reused and which are not physically located in the confines of the facility, or areas that are in compliance with 40 CFR 503;

(x) Construction activity including clearing, grading, and excavation activities except: operations that result in the disturbance of less than five acres of total land area which are not part of a larger common plan of development or sale;

(xi) Facilities under Standard Industrial Classifications 20, 21, 22, 23, 2434, 25, 265, 267, 27, 283, 31 (except 311), 34 (except 3441), 35, 36, 37 (except 373), 38, 39, 4221-25 [and which are not otherwise included within categories (i) - (x)].

"Upset" means an exceptional incident in which there is unintentional and temporary noncompliance with technology-based permit effluent limitations because of factors beyond the reasonable control of the permittee. An upset does not include noncompliance to the extent caused by operational error, improperly designed treatment facilities, inadequate treatment facilities, lack of preventive maintenance, or careless or improper operation.

"Waters of the state" Any and all surface waters that are contained in or flow in or through the state of North Dakota as defined in NDCC 61-28-02. This definition includes all water courses, even if they are usually dry.

SECTION 02220

DEMOLITION
11/00

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ENGINEERING MANUALS (EM)

EM 385-1-1 (1996) U.S. Army Corps of Engineers Safety and Health Requirements Manual

1.2 GENERAL REQUIREMENTS

The work includes demolition, salvage of identified items and materials, and removal of resulting rubbish and debris. Rubbish and debris shall be removed from project site daily, unless otherwise directed, to avoid accumulation at the demolition site. Materials that cannot be removed daily shall be stored in areas specified by the Contracting Officer. In the interest of occupational safety and health, the work shall be performed in accordance with EM 385-1-1, Section 23, Demolition, and other applicable Sections. In the interest of conservation, salvage shall be pursued to the maximum extent possible; salvaged items and materials shall be disposed of as specified.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-08 Statements

Work Plan; GA.

The procedures proposed for the accomplishment of the work. The procedures shall provide for safe conduct of the work, including procedures and methods to provide necessary supports, lateral bracing and shoring when required, careful removal and disposition of materials specified to be salvaged, protection of property which is to remain undisturbed, coordination with other work in progress, and timely disconnection of utility services. The procedures shall include a detailed description of the methods and equipment to be used for each operation, and the sequence of operations in accordance with EM 385-1-1.

1.4 DUST CONTROL

The amount of dust resulting from demolition shall be controlled to prevent the spread of dust to occupied portions of the construction site and to avoid creation of a nuisance in the surrounding area. Use of water will not be permitted when it will result in, or create, hazardous or objectionable conditions such as ice, flooding and pollution.

1.5 PROTECTION

1.5.1 Protection of Personnel

During the demolition work the Contractor shall continuously evaluate the condition of the structure being demolished and take immediate action to protect all personnel working in and around the demolition site. No area, section, or component of floors, roofs, walls, columns, pilasters, or other structural element will be allowed to be left standing without sufficient bracing, shoring, or lateral support to prevent collapse or failure while workmen remove debris or perform other work in the immediate area.

1.5.2 Protection of Structures

Floors, roofs, walls, columns, pilasters, and other structural components that are designed and constructed to stand without lateral support or shoring, and are determined to be in stable condition, shall remain standing without additional bracing, shoring, or lateral support until demolished, unless directed otherwise by the Contracting Officer. The Contractor shall ensure that no elements determined to be unstable are left unsupported and shall be responsible for placing and securing bracing, shoring, or lateral supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

1.5.3 Protection of Existing Property

Before beginning any demolition work, the Contractor shall survey the site and examine the drawings and specifications to determine the extent of the work. The Contractor shall take necessary precautions to avoid damage to existing items to remain in place or be reused; any damaged items shall be repaired or replaced as approved by the Contracting Officer. The Contractor shall coordinate the work of this section with all other work and shall construct and maintain shoring, bracing, and supports as required. The Contractor shall ensure that structural elements are not overloaded and shall be responsible for increasing structural supports or adding new supports as may be required as a result of any cutting, removal, or demolition work performed under this contract.

1.5.4 Protection of Trees

Trees within the project site which might be damaged during demolition, and which are indicated by the Contracting Officer to be left in place, shall be protected by a 6 foot high fence. The fence shall be securely erected a minimum of 5 feet from the trunk of individual trees or follow the outer perimeter of branches or clumps of trees. Any tree designated to remain that is damaged during the work under this contract shall be replaced in kind or as approved by the Contracting Officer.

1.5.5 Environmental Protection

The work shall comply with the requirements of SECTION 01410: ENVIRONMENTAL PROTECTION.

1.6 BURNING

The use of burning at the project site for the disposal of refuse and debris will not be permitted.

1.7 USE OF EXPLOSIVES

Use of explosives will not be permitted.

2 PRODUCTS (NOT APPLICABLE)

3 EXECUTION

3.1 EXISTING STRUCTURES

Existing structures indicated on plans to be removed shall be removed. See the attached schedule of existing structures to be demolished.

Abandoned water main shall be plugged as approved by the Contracting Officer and pipes removed. The water main plug shall be inspected and approved by the City of Grand Forks water utility department prior to backfilling.

Cutoff existing piles 2 feet-0 inches below bottom of proposed culverts floor slab.

3.2 UTILITIES

When utility lines are encountered that are not indicated on the drawings, the Contracting Officer shall be notified prior to further work in that area.

3.3 FILLING

Holes, open basements and other hazardous openings shall be filled in accordance with SECTION 02300: EARTHWORK.

3.4 DISPOSITION OF MATERIAL

Title to material and equipment to be demolished, except Government salvage and historical items, is vested in the Contractor upon receipt of notice to proceed. The Government will not be responsible for the condition, loss or damage to such property after notice to proceed.

3.4.1 Salvageable Items and Material

Contractor shall salvage items and material to the maximum extent possible.

3.4.1.1 Material Salvaged for the Contractor

Material salvaged for the Contractor shall be stored as approved by the Contracting Officer and shall be removed from the project site before

completion of the contract. Material salvaged for the Contractor shall not be sold on the site.

3.4.1.2 Items Salvaged for Reuse

Salvaged items to be reused shall be removed in a manner to prevent damage and protect from damage while in storage. Items damaged during storage shall be repaired or replaced to match existing items.

3.4.2 Unsalvageable Material

Concrete, masonry, and other noncombustible material shall be disposed of off site.

3.5 CLEAN UP

Debris and rubbish shall be removed from basement and similar excavations. Debris shall be removed and transported in a manner that prevents spillage on streets or adjacent areas. Local regulations regarding hauling and disposal shall apply.

3.6 PAVEMENTS

Existing pavements designated for removal shall be saw cut and removed in accordance with the details shown on the drawings.

English Coulee Diversion, Grand Forks, ND Demolition Schedule

Station	Bank	Structure	Notes
1+00	L	Fence	Length = 1510', from Red River to Columbia Road
1+00	R	Fence	Length = 1760', from Red River to Columbia Road
2+28		Drop Structure	
4+48		Drop Structure	
9+18	L	Culvert	
9+92		Drop Structure	
16+20		Fence	Length = 200', Highway Fence
16+33		Bridge	Columbia Road, Single Span Bridge, 30' L x 58' W
17+00	L	Culvert	
36+00		Culvert	Hwy 81, 2-10' x 9' Box Culvert, Length = 83'
36+00	L	Culvert	
37+40	R	Culvert	
37+50	L	Culvert	
49+00	L	Culvert	
49+20	L	Driveway	
52+60	L	Culvert	
55+20	L	Culvert	
55+40	L	Driveway	
63+70	L	Culvert	
81+00		Fence	Length = 740', Parallel to I-29
81+55	L	Culvert	
81+60	R	Culvert	
82+20		Culvert	I-29, 2-10' x 9' RC Box Culvert, Length = 166'
84+10		Fence	Length = 760', Parallel to I-29
84+70	L	Culvert	
84+70	R	Culvert	
92+50	R	Culvert	
107+80	R	Culvert	
123+50	L	Culvert	
130+60	L	Culvert	
163+25	L	Culvert	
175+40		Bridge	27th Avenue, Single Span Bridge, 42' L x 31' W
177+90	R	Culvert	
178+00	R	Driveway	
188+65	L	Culvert	
192+30	L	Culvert	
197+30	R	Culvert	
197+40	R	Culvert	
198+80		Bridge	Three Span Bridge, 70' L x 25' W
199+20	L	Culvert	
201+00	R	Culvert	Affected by Modifications to 55th Street (550+ ft from center line of diversion)
201+00	R	Driveway	Affected by Modifications to 55th Street (550+ ft from center line of diversion)
201+25	R	Culvert	
210+80	R	Culvert	
226+85	R	Culvert	

English Coulee Diversion, Grand Forks, ND Demolition Schedule

Station	Bank	Structure	Notes
233+80	R	Culvert	
244+30	R	Culvert	
252+40	L	Culvert	
252+50	L	Driveway	
275+70	L	Culvert	
275+80	L	Driveway	
276+60	R	Building	<p><u>Humane Society</u> Address: 6900 Gateway Drive Utilities: Building still occupied all utilities hooked up as of November 2000. Building: Original building is 40'x60' (Built in 1950's). Original upper level 21'x60'. Addition 24'x60' (Built in 1985). Cold storage building 10'x16'. All building are of wood construction.</p>
278+25		Abandoned Water Main	
281+35	L	Culvert	
281+50	R	Driveway	
283+00	R	Building	<p><u>Westgate Marine Property</u> Address: 1334 69th Street North Utilities: Building still occupied; all utilities hooked up as of November 2000. Building: Built in 1975, structural steel, steel beams and joists with metal panel walls. 17' high walls and 19' at the peak. Approximately 12,430 sq.ft. of concrete paving around building. Approximately 42,280 sq.ft. of asphalt paving. Concrete foundation, no basement.</p>
285+75	L	Culvert	
285+90	L	Driveway	
299+80	L	Culvert	
300+00	L	Driveway	
301+80	R	Building	<p><u>Wimpfheimer Property</u> Address: 750 69th Street North Utilities: Electricity is off, water is off and disconnected, and gas is still on as of November 2000. Building: 1977 Wausau manufactured home 1122 sq.ft. Attached garage on concrete slab, 24'x26.5'. 18'x20' garage on concrete slab. 20'x25' concrete patio. Concrete foundation and knee wall.</p>
315+70	L	Culvert	
315+75	L	Driveway	
318+20	L	Culvert	
318+30	L	Driveway	
332+80	L	Culvert	
333+80	L	Culvert	
349+60	L	Culvert	
349+60	L	Driveway	

English Coulee Diversion, Grand Forks, ND Demolition Schedule

Station	Bank	Structure	Notes
359+10	L	Culvert	
359+10	L	Driveway	
370+30	L	Driveway	
370+40	L	Driveway	
370+80	R	Building	<u>Lunski Property</u> Address: 1373 69th Street North Utilities: Building still occupied; all utilities hooked up as of November 2000. Building: Built in 1994, wood frame rambler, 1625 sq.ft. Poured concrete basement. Approximately 613 sq.ft. attached garage with a 26'x30' concrete pad.
386+10	L	Culvert	
397+10	L	Culvert	
397+20	R	Driveway	
446+90	L	Culvert	
463+90	L	Culvert	
463+95	L	Driveway	
474+00	L	Culvert	
474+20	L	Culvert	
476+40	L	Culvert	
476+40	L	Driveway	
491+30	L	Culvert	
491+80	L	Culvert	
500+80	L	Culvert	
500+85	L	Driveway	
501+90	L	Culvert	
502+05	L	Culvert	

SECTION 02230

CLEARING AND GRUBBING

11/00

1 GENERAL

1.1 DEFINITIONS

1.1.1 Clearing

Clearing shall consist of the felling, trimming, and cutting of trees into sections and the satisfactory disposal of the trees and other vegetation designated for removal, including down timber, snags, brush, and rubbish occurring in the areas to be cleared. Clearing operations shall be conducted in areas designated on the plans for embankments, levees, channels, and ditches.

1.1.2 Grubbing

Grubbing shall consist of the removal and disposal of stumps, roots larger than 3 inches in diameter, and matted roots from the designated grubbing areas. Grubbing operations shall be done in areas to receive compacted and semi compacted fill and under the minimum extent of disposal fill as shown on plans. For areas to receive the maximum extent of disposal fill, grubbing is not necessary.

2 PRODUCTS (NOT APPLICABLE)

3 EXECUTION

3.1 CLEARING

Trees, stumps, roots, brush, and other vegetation in areas to be cleared shall be cut off flush with or below the original ground surface, except such trees and vegetation as may be indicated or directed to be left standing. Trees designated to be left standing within the cleared areas shall be trimmed of dead branches 1-1/2 inches or more in diameter and shall be trimmed of all branches at the heights indicated or directed. Limbs and branches to be trimmed shall be neatly cut close to the bole of the tree or main branches. Cuts more than 1-1/2 inches in diameter shall be painted with an approved tree-wound paint. Trees and vegetation to be left standing shall be protected from damage incident to clearing, grubbing, and construction operations by the erection of barriers or by such other means as the circumstances require.

3.2 GRUBBING

Material to be grubbed, together with logs and other organic or metallic debris not suitable for foundation purposes, shall be removed to a depth of not less than 18 inches below the original surface level of the ground in areas indicated to be grubbed and in areas indicated as construction areas under this contract, such as areas for buildings, and areas to be paved. Depressions made by grubbing shall be filled with suitable material and

compacted to make the surface conform with the original adjacent surface of the ground.

3.3 TREE REMOVAL

Where directed by the Contracting Officer, trees and stumps shall be removed from areas outside those areas designated for clearing and grubbing. This work shall include the felling of such trees and the removal of their stumps and roots as specified in paragraph GRUBBING. Trees shall be disposed of as specified in paragraph DISPOSAL OF MATERIALS.

3.4 DISPOSAL OF MATERIALS

3.4.1 Materials Other Than Salable Timber

Logs, stumps, roots, brush, rotten wood, and other refuse from the clearing and grubbing operations, except for salable timber, shall be disposed of in the designated waste disposal area except when otherwise directed in writing. Such directive will state the conditions covering the disposal of such products and will also state the areas in which they may be placed.

3.5 ACCEPTANCE

Upon completion of the site clearing, obtain the Contracting Officer's acceptance of the extent of clearing and grubbing.

SECTION 02300

EARTHWORK
12/00

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 117	(1995) Materials Finer Than 75 Micrometers (No. 200 Sieve) in Mineral Aggregates by Washing
ASTM C 136	(1996) Sieve Analysis of Fine and Coarse Aggregates
ASTM D 698	(1991) Laboratory Compaction Characteristics of Soil Using Standard Effort (12,400 ft-lbf/ft ³) (600 KN-m/m ³)
ASTM D 1556	(1996) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 2487	(1993) Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2488	(1993) Description and Identification of Soils
ASTM D 2922	(1996) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(1988; R 1993) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
ASTM D 4318	(1995a) Liquid Limit, Plastic Limit, and Plasticity Index of Soils

NORTH DAKOTA DEPARTMENT OF TRANSPORTATION (NDDOT)

Standard Specifications for Road and Bridge Construction

NDDOT 203	(1997) Excavation and Embankment
NDDOT 230	(1997) Reshaping Roadway and Subgrade Preparation

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-09 Reports

Testing; FIO.

A summary of testing results indicated in PARAGRAPH: TESTING shall be submitted when the site work is substantially complete. See PARAGRAPH: TESTING for draft correspondence.

1.3 SUBSURFACE DATA

The material to be excavated generally consists of silt and clay with relatively high moisture contents in many areas. The deposits in the major portion of the project are alkali or saline in nature and in many areas have moisture contents near or above their liquid limits. Experience with other projects in the general area indicate that these deposits can become very soft when disturbed by construction equipment. Based on local experience, excavation of these deposits has often been done during the winter months when frozen soils provide better support for excavation and hauling equipment. Soil boring logs containing more specific subsurface information are included in the plan reference drawings.

2 PRODUCTS

2.1 DEFINITIONS

2.1.1 Satisfactory Materials

Material placed as compacted fill, semi compacted fill, minimum extent of disposal fill, or backfill shall consist of material classified by ASTM D2487 as GW, GP, GC, GM, SP, SM, SC, CH, ML, MH, CL AND SW. The material shall be free of ice, snow, frozen earth, trash, debris, sod, roots, organic matter, or stones larger than 3 inches in any dimension. All materials shall be of a character and quality satisfactory for the purpose intended. Maximum extent of disposal fill may have frozen earth.

2.1.2 Cohesionless and Cohesive Materials

Cohesionless materials include materials classified in ASTM D 2487 as GW, GP, SW, and SP. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM and SM will be identified as cohesionless only when the fines are nonplastic.

2.2 MATERIALS

2.2.1 Select Granular Fill

Select granular material shall be satisfactory material containing not more than 5 percent by weight of material passing the No. 200 sieve. The maximum allowable aggregate size shall be 1-1/2 inches.

2.2.2 Granular Fill

Granular material shall be satisfactory material containing not more than 12 percent by weight of material passing the No. 200 sieve.

2.2.3 Embankment Fill

The contract drawings indicate three types of fill to be used for levee construction. These include compacted fill, semi compacted fill and disposal fill. Material requirements for these types of fill are as follows:

2.2.3.1 Compacted Fill

Compacted fill shall consist of satisfactory cohesive material free from ice lenses and frozen material.

2.2.3.2 Semi Compacted Fill

Semi compacted fill shall have the same requirements as compacted fill.

2.2.3.3 Disposal Fill

Minimum extent of disposal fill shall have the same requirements as compacted fill.

Maximum extent of disposal fill may be any material obtained from required excavations. This includes frozen soil, muck, organic soil or large stones.

2.3 CONSTRUCTION EQUIPMENT

Compaction equipment shall consist of sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, or other approved equipment well suited to the soil type being compacted. Water flooding or jetting methods of compaction will not be permitted for any soil types. Sprinkling equipment for cohesive soils shall apply water uniformly, in controlled quantities, and be capable of variable application widths.

2.3.1 Levees

Use of sheepfoot rollers (vibratory or non-vibratory), or scarification between lifts, is required for construction of the compacted or semi compacted levees. Construction equipment and methods shall avoid poor bonding between lifts, characterized by layered or laminated texture at the lift interfaces. Smooth surfaces (such as produced from smooth drum rollers, rubber tired rollers, and construction traffic) shall be scarified prior to placing subsequent lifts.

3 EXECUTION

3.1 CLASSIFICATION OF SOIL MATERIALS

Classification of soil materials shall be performed by the Contractor in accordance with [ASTM D 2488](#). The Contracting Officer reserves the right to revise the Contractor classifications. In the case of disagreement, the Contracting Officer's classification will govern unless the soils are

classified in accordance with ASTM D 2487. All testing completed by the Contractor in conjunction with soil material classification will be considered incidental to the contract work.

3.2 STOCKPILES

Stockpiles of satisfactory material shall be placed and graded as specified. Stockpiles of all materials shall be kept in a neat and well drained condition, giving due consideration to drainage at all times. The ground surface at stockpile locations shall be cleared, grubbed, and sealed. Excavated satisfactory and unsatisfactory materials shall be separately stockpiled. Stockpiles of satisfactory materials shall be protected from contamination which may destroy the quality and fitness of the stockpiled material. If the Contractor fails to protect the stockpiles, and any material becomes unsatisfactory, such material shall be removed and replaced with satisfactory material from approved sources at no additional cost to the Government.

3.3 STRIPPING OF TOPSOIL

Where indicated or directed, topsoil shall be stripped to a maximum depth of 1.0 feet. Topsoil shall be spread on areas already graded and prepared for topsoil, or transported and deposited in stockpiles convenient to areas that are to receive application of the topsoil later, or at locations indicated or specified. Observation of existing vegetation in the area between approximately station 225+00 and 385+00 indicate that the existing topsoil is very alkaline or saline in nature and may not be suitable for use as topsoil on project earthwork. Topsoil shall be kept separate from other excavated materials, brush, litter, objectionable weeds, roots, stones larger than 2 inches in diameter, and other materials that would interfere with planting and maintenance operations. Any surplus of topsoil from excavations and grading shall be removed from the site.

3.4 COMMON EXCAVATION

After topsoil removal has been completed, excavation of every description, regardless of material encountered, within the grading limits of the project shall be performed to the lines and grades indicated. Excavation material suitable for use as fill shall be transported to and placed in fill areas within the limits of the work. All unsatisfactory material, including any soil which is disturbed by the Contractor's operations or softened due to exposure to the elements and water, and surplus material shall be disposed of in disposal fill areas designated on the drawings. In the event that it is necessary to remove unsatisfactory material to a depth greater than specified, the Contracting Officer shall be notified prior to removal of unsatisfactory material and an adjustment in the contract price will be considered in accordance with the contract. Excavations carried below the depths indicated shall be refilled to the proper grade with satisfactory material. Additional work not authorized by the Contracting Officer shall be at the Contractor's expense. Material required for fill or embankment in excess of that produced by excavation within the grading limits shall be excavated from borrow areas selected by the Contractor and approved by Contracting Officer as specified.

3.5 DIVERSION CHANNEL AND DITCHES

Ditches and diversion channel shall be cut accurately to the cross sections and grades indicated. Ditches shall be finished in a manner that will

result in effective drainage. All roots, stumps, rock, and foreign matter in the sides and bottom of ditches and diversion channel shall be trimmed and dressed or removed to conform to the slope, grade, and shape of the section indicated. Care shall be taken not to excavate below the grades indicated. Excessive excavation shall be backfilled to grade with properly placed and compacted material. All ditches excavated under this section shall be maintained until final acceptance of the work. Satisfactory material excavated from ditches shall be placed in fill areas. Unsatisfactory and excess excavated material shall be properly disposed of.

3.5.1 Drainage

Surface water shall be directed away from excavation and construction sites so as to prevent erosion and undermining of foundations. Diversion ditches, dikes and grading shall be provided and maintained as necessary during construction. Excavated slopes and backfill surfaces shall be protected to prevent erosion and sloughing. Excavation shall be performed so that the site and the area immediately surrounding the site and affecting operations at the site shall be continually and effectively drained.

3.5.2 Dewatering

See SECTION 01000: GENERAL for dewatering requirements.

3.5.3 Scour Hole Backfill Material

Granular fill shall be used to fill scour holes in channel bottom to the lines and grades indicated and for replacing unsatisfactory materials, unless otherwise indicated or directed.

3.6 BORROW MATERIAL

3.6.1 Common Borrow

It is anticipated that all cohesive fill will be obtained from required excavation. No borrow sources will be provided for cohesive or cohesionless fill.

Borrow material shall be selected to meet the requirements and conditions of the particular fill or embankment for which it is to be used.

3.6.2 Excavation

Except as otherwise permitted excavation areas shall be excavated providing adequate drainage. Overburden and other spoil material shall be transported to designated disposal fill areas or otherwise disposed of, or used for special purposes.

3.6.3 Utilization of Excavated Materials

Satisfactory material removed from excavations shall be used, insofar as practicable, in the construction of fills, subgrades, and for similar purposes. No excavated material shall be disposed of in such a manner as to obstruct the flow of any stream, endanger a partly finished structure, impair the efficiency or appearance of any structure, or be detrimental to the completed work in any way.

3.7 EMBANKMENTS

Compacted and semi compacted fills and roadway embankments shall be constructed at the locations and to lines and grades indicated. Fill shall be satisfactory material. The material shall be placed in successive horizontal layers for the full width of the cross section designated for compaction and shall be compacted as specified. Each layer shall be compacted before the overlaying lift is placed.

3.8 LEVEES

3.8.1 Embankment

If not specifically identified, compacted, semi compacted and disposal fill or other unclassified material shall be sorted to the extent practicable with the more cohesive and less pervious material placed coulee side, and sandy free-draining material placed land side.

3.9 SUBGRADE PREPARATION

Areas upon which compacted, semi compacted and minimum extent of disposal fill is to be placed shall be stripped before the fill is started. Material other than maximum extent of disposal fill shall not be placed on surfaces that are muddy, frozen, contain frost, or where unsatisfactory material remains in or under the fill. For cohesionless soils, the subgrade surface shall be scarified to a depth of 12 inches and compacted to at least 100 Percent of the Standard Proctor density. For cohesive soils, the subgrade shall be proof rolled with rubber tired equipment and any soft areas shall be brought to the Contracting Officer's attention. Sloped ground surfaces steeper than one vertical to four horizontal on which fill is to be placed shall be stepped such that the fill material will bond with the existing surface.

3.9.1 Subgrade Correction

Soft or otherwise unsatisfactory material under compacted and semi-compacted fill shall generally be removed and replaced with satisfactory excavated material or other approved material as directed. Low areas resulting from removal of unsatisfactory material shall be brought up to required grade with satisfactory materials, and the entire subgrade shall be shaped to line, grade, and cross section and compacted as specified. Subgrade correction under disposal fill is not necessary.

3.10 FINISHING

All areas covered by the project, including excavated and filled sections and adjacent transition areas, shall be uniformly smooth-graded. The finished surface shall be reasonably smooth, compacted, and free from irregular surface changes. The degree of finish shall be that ordinarily obtainable from blade-grader operations, except as otherwise specified. Ditches shall be finished to permit adequate drainage. The surface of areas to be turfed shall be finished to a smoothness suitable for the application of turfing.

3.10.1 Roadway Subgrade Tolerances

When the final layer of subgrade has been completed, and at the time any additional construction is to be placed thereon, the finished surface of the subgrade shall not vary more than 0.05 feet from the plan elevation.

3.10.2 Embankment Tolerances

The finished surface of compacted and semi-compacted levees and embankments not used for roadways shall not vary more than plus (+) 0.5 feet.

3.10.3 Channel Tolerances

The finished surface of the diversion channel bottom shall not vary more than minus (-) 0.15 feet.

3.11 PLACING TOPSOIL

Topsoil placement is covered in SECTION 02920: SEEDING, SODDING, AND TOPSOIL. The finished grade shall be such that after subsequent treatment (tillage, topsoiling and planting) the planted grade shall join 1 inch below adjoining surfaced grade of paved areas and even with adjoining turfed areas.

3.12 COMPACTION

3.12.1 Degree of Compaction

Degree of compaction required is expressed as a percentage of the maximum density obtained by the test procedure presented in [ASTM D 698](#). The maximum density is hereafter abbreviated as the "Standard Proctor" value.

3.12.2 Moisture Control

Control of moisture in all types of fill except disposal fill shall be maintained to provide acceptable compaction. Dried or crusted cohesive soils shall be plowed, disked or otherwise broken up before compaction. If water is added to fills, the layer shall be spread in even lifts, moistened as necessary, thoroughly mixed, and compacted.

3.12.3 Placement And Compaction

For all types of fill except disposal fill each layer shall be spread uniformly on an acceptable soil surface. The type of fill, its maximum uncompacted lift thickness, and the minimum compaction requirements (Percent of Standard Proctor density) to which each type of fill shall be compacted shall be as listed below.

<u>Fill Zone</u>	<u>Maximum Uncompacted Lift Thickness (inches)</u>	<u>Percent of Standard Proctor Density</u>
General Grading	12	95
Levees - Compacted Fill	12	95
Levees - Semi Compacted	12	See 3.12.4

Levees - Disposal Fill N/A See 3.12.4

Utility and Storm Drain Backfill Use specification for zone where utility is located.

- a. Satisfactory materials shall be place in horizontal layers not exceeding 6 inches loose depth when hand operated compactors are used.
- b. Roadway embankments and subgrade shall be compacted to at least the Percent of Standard Proctor density as follows:

(1) For embankment fill sections the top 36 inches below the aggregate base course shall be placed in uncompacted lifts not exceeding 9 inches and compacted to at least 100 Percent of the Standard Proctor density at a moisture content of +/- 3% OMC.

(2) For roadway cut sections in cohesionless soils the subgrade surface shall be compacted to at least 100 Percent of the Standard Proctor density. For cut sections in cohesive soils, the subgrade shall be proof rolled and any soft areas shall be brought to the Contracting Officer's attention.

(3) For pavement subgrade, use Subgrade Preparation Type A with compaction to 100 percent of Standard Proctor maximum dry density at a moisture content of +/-3% OMC. Refer to NDDOT Specification Sections 203 and 230.

3.12.4 Semi Compacted and Disposal Fill

3.12.4.1 Semi Compacted Fill

Semi compacted fill shall be placed in 12 inch lifts. Each lift shall have a minimum of 5 passes over the entire surface of a crawler type tractor weighing not less than 20,000 lbs or 5 passes of other approved compaction equipment.

3.12.4.2 Disposal Fill

It is anticipated that disposal fill will be placed in loose piles after removal from required excavation. The surface of the piles will be graded to provide a uniform free draining surface and the entire final surface will be compacted by a minimum of 2 passes of a crawler type tractor weighing not less than 20,000 lbs or other approved compaction equipment.

3.13 TESTING

3.13.1 General

All testing expenses shall be the Contractor's responsibility. Prior to sampling and testing the work, testing laboratories shall be inspected and approved in accordance with SECTION 01451: CONTRACTOR QUALITY CONTROL. The Contracting Officer reserves the right to direct the location and select the material for samples to be tested and to direct where and when moisture-density tests shall be performed.

3.13.2 Transmittal

The Contracting Officer shall be informed of test results daily for direction on corrective action required. Draft copies of field testing results shall be submitted to the Contracting Officer on a frequent and regular basis, as directed.

3.13.3 Corrective Action

Tests of materials which do not meet the contract requirements (failing test) will not be counted as part of the required testing. Each such failing test must be retaken at the same location as the failing test was taken. If testing indicates material does not meet the contract requirements, the material represented by the failing test shall not be placed in the contract work or shall be recompact or removed. The quantity of material represented by the failing test shall be determined by the Contracting Officer up to the quantity represented by the testing frequency. The Contractor may increase testing frequency in the vicinity of a failing test in order to reduce removal requirements, as approved by the Contracting Officer. Such increases in testing frequency shall be at the Contractor's expense and at no additional cost to the Government.

3.13.4 Testing Schedule

a. Moisture-Density Relations (ASTM D 698)

One test for each material variation, not less than 3 tests total.

b. In-Place Densities (ASTM D 1556 or ASTM D 2922)

(1) Typical, 1 test per 2500 CY of fill placed

(2) Structure foundations and floor slabs, not less than 1 test for each 2 vertical feet of fill

(3) Utility trench backfill below pavements and slabs, not less than 1 test per 2 vertical feet per 300 linear feet

c. Percent Passing No. 200 sieve (ASTM C 117)

(1) Select Granular Fill, 1 test per 1000 CY of fill placed, not less than 1 test for each source placed

(2) Granular Fill, 1 test per 5000 CY of fill placed, not less than 1 test for each source

d. Sieve Analysis, (ASTM C 136)

(1) Select Granular Fill, 1 test for each source

e. Plasticity Index (ASTM D 4318)

(1) Cohesive soils, 1 test for each moisture density relation

f. No testing will be required for disposal fill.

3.14 NUCLEAR DENSITY TESTING EQUIPMENT

Nuclear density testing equipment shall be used in general accordance with **ASTM D 2922** and **ASTM D 3017**. In addition, the following conditions shall apply:

- a. Prior to using the nuclear density testing equipment on the site, the Contractor shall submit to the Contracting Officer a certification that the operator has completed a training course approved by the nuclear density testing equipment manufacturer, the most recent data sheet from the manufacturer's calibration, and a copy of the most recent statistical check of the standard count precision.
- b. The first test and every tenth test thereafter shall include a sand cone correlation test. The sand cone test shall be centered over the prepared surface for the nuclear test, shall include a nominal 6 inch diameter sand cone, and shall include a minimum wet soil weight of 6 pounds extracted from the hole. In addition, testing of aggregate base soils shall include a minimum of 3 sand cone correlations for each day of testing; and testing of bituminous shall include a minimum of 3 core densities for each day of testing. The density correlations shall be submitted with test results. Each transmittal including density test data shall include a summary of all density correlations for the job neatly prepared on a summary sheet including at a minimum:
 - (1) meter serial number and operators initials.
 - (2) standard count for each test.
 - (3) material type.
 - (4) probe depth.
 - (5) moisture content by each test method and the deviation.
 - (6) wet density by each test method and the deviation.
- c. The nuclear density testing equipment shall be capable of extending a probe 6 inches minimum down into a hole.
- d. Nuclear density testing equipment used within 2 vertical feet from the existing ground water level, 5 horizontal feet from a vertical wall or massive concrete structure, or in a trench shall have the standard count changed before and after each test.
- e. Nuclear density testing equipment shall not be used during rain.

3.15 SUBGRADE AND EMBANKMENT PROTECTION

Compacted subgrades that are disturbed by the Contractor's operations or adverse weather shall be scarified and compacted as specified herein to the required density prior to further construction thereon. Subgrades not meeting the specifications for finish, material type and density at the time of surface material placement shall be corrected at the Contractor's expense. Cohesive embankments and subgrades shall be kept crowned or sloped for drainage. Newly graded areas shall be protected from traffic and erosion. Any settlement or washing away that may occur from any cause shall be repaired. No base course or pavement shall be laid until the subgrade has been checked and approved by the Contracting Officer. Ditches and drains along subgrade shall be maintained to provide effective drainage. All work shall implement best management practices for erosion control.

SECTION 02315

EXCAVATION, FILLING AND BACKFILLING FOR STRUCTURES
11/00

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 1556	(1990; R 1996) Density and Unit Weight of Soil in Place by the Sand-Cone Method
ASTM D 1557	(1991) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/cu. ft. (2,700 kN-m/cu.m.))
ASTM D 2167	(1994) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D 2216	(1992) Laboratory Determination of Water (Moisture) Content of Soil, and Rock
ASTM D 2487	(1993) Classification of Soils for Engineering Purposes (Unified Soil Classification System)
ASTM D 2922	(1996) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 2937	(1994) Density of Soil in Place by the Drive-Cylinder Method
ASTM D 3017	(1988; R 1993) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)
ASTM D 4318	(1995a) Liquid Limit, Plastic Limit, and Plasticity Index of Soils

1.2 DEGREE OF COMPACTION

Degree of compaction is expressed as a percentage of the maximum density obtained by the test procedure presented in ASTM D 1557, abbreviated as percent laboratory maximum density.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The

following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-09 Reports

Testing; FIO.

Copies of all laboratory and field test reports within 24 hours of the completion of the test.

2 PRODUCTS

2.1 MATERIALS

2.1.1 Satisfactory Materials

Satisfactory materials for general backfill shall comprise any materials classified by ASTM D 2487 as GW, GP, GM, GP-GM, GW-GM, GC, GP-GC, GM-GC, SW, SP, SM, SW-SM, SC, SW-SC, SP-SM, SP-SC, CL, ML, CL-ML, CH, MH.

2.1.2 Granular Fill

Granular material shall be satisfactory material containing not more than 12 percent by weight of material passing the No. 200 sieve. For free draining select granular fill, the material shall contain not more than 5 percent by weight of material passing the No. 200 sieve.

2.1.3 Unsatisfactory Materials

Materials which do not comply with the requirements for satisfactory materials are unsatisfactory. Unsatisfactory materials also include man-made fills, trash, refuse, or backfills from previous construction. Unsatisfactory material also includes material classified as satisfactory which contains root and other organic matter, frozen material, and stones larger than 3 inches. The Contracting Officer shall be notified if any contaminated materials are found.

2.1.4 Cohesionless and Cohesive Materials

Cohesionless materials include materials classified in ASTM D 2487 as GW, GP, SW, and SP. Cohesive materials include materials classified as GC, SC, ML, CL, MH, and CH. Materials classified as GM, GP-GM, GW-GM, SW-SM, SP-SM, and SM shall be identified as cohesionless only when the fines are nonplastic.

3 EXECUTION

3.1 CLEARING AND GRUBBING

Clearing and grubbing is specified in SECTION 02230: CLEARING AND GRUBBING.

3.2 TOPSOIL

Stripping topsoil is specified in SECTION 02300: EARTHWORK.

3.3 EXCAVATION

Excavation shall conform to the dimensions and elevations indicated for each structure, and footing except as specified. Excavation shall extend a sufficient distance from walls and footings to allow for placing and removal of forms. Excavations below indicated depths will not be permitted except to remove unsatisfactory material. Unsatisfactory material encountered below the grades shown shall be removed as directed and replaced with satisfactory material; and payment will be made in conformance with the CHANGES clause of SECTION 00700: CONTRACT CLAUSES. Satisfactory material removed below the depths indicated, without specific direction of the Contracting Officer, shall be replaced, at no additional cost to the Government, with satisfactory materials to the indicated excavation grade. Satisfactory material shall be placed and compacted as specified in paragraph FILLING AND BACKFILLING. Determination of elevations and measurements of approved overdepth excavation of unsatisfactory material below grades indicated shall be done under the direction of the Contracting Officer.

3.4 DRAINAGE AND DEWATERING

3.4.1 Drainage

Surface water shall be directed away from structure excavation sites to prevent erosion and undermining of foundations. Diversion ditches, dikes and grading shall be provided and maintained as necessary during construction. Excavated slopes and backfill surfaces shall be protected to prevent erosion and sloughing. Excavation shall be performed so that the site, the area immediately surrounding the site, and the area affecting operations at the site shall be continually and effectively drained.

3.4.2 Dewatering

See SECTION 01000: GENERAL for dewatering requirements.

Groundwater flowing toward or into structure excavations shall be controlled to prevent sloughing of excavation slopes and walls, boils, uplift and heave in the excavation and to eliminate interference with orderly progress of construction. French drains, sumps, ditches or trenches will not be permitted within 3 feet of the foundation of any structure, except with specific written approval, and after specific contractual provisions for restoration of the foundation area have been made. Control measures shall be taken by the time the excavation reaches the groundwater level in order to maintain the integrity of the in situ material. While the excavation is open, the groundwater level shall be maintained continuously, at least 2 feet below the working level. Shut off dewatering system at such a rate to prevent a quick upsurge of water that might weaken the subgrade.

3.5 <TAI OPT=SHORING>3.5 SHORING

See SECTION 01000: GENERAL for shoring requirements.

3.6 </TAI>3.6 CLASSIFICATION OF EXCAVATION

Excavation will be unclassified regardless of the nature of material encountered.

3.7 BLASTING

Blasting will not be permitted.

3.8 EXCAVATED MATERIALS

Satisfactory excavated material required for fill or backfill shall be placed in the proper section of the permanent work required under this section or shall be separately stockpiled if it cannot be readily placed. Satisfactory material in excess of that required for the permanent work and all unsatisfactory material shall be disposed of as specified in SECTION 02300: EARTHWORK.

3.9 FINAL GRADE OF SURFACES TO SUPPORT CONCRETE

Excavation to final grade shall not be made until just before concrete is to be placed. For pile foundations, the excavation shall be stopped at an elevation of from 6 to 12 inches above the bottom of the footing before driving piles. After pile driving has been completed, the remainder of the excavation shall be completed to the elevations shown. Approximately level surfaces shall be roughened, and sloped surfaces shall be cut as indicated into rough steps or benches to provide a satisfactory bond. Shales shall be protected from slaking and all surfaces shall be protected from erosion resulting from ponding or flow of water.

3.10 SUBGRADE PREPARATION

Unsatisfactory material in surfaces to receive fill or in excavated areas shall be removed and replaced with satisfactory materials as directed by the Contracting Officer. The surface shall be scarified to a depth of 6 inches before the fill is started. Sloped surfaces steeper than 1 vertical to 4 horizontal shall be plowed, stepped, benched, or broken up so that the fill material will bond with the existing material. When subgrades are less than the specified density, the ground surface shall be broken up to a minimum depth of 6 inches, pulverized, and compacted to the specified density. When the subgrade is part fill and part excavation or natural ground, the excavated or natural ground portion shall be scarified to a depth of 12 inches and compacted as specified for the adjacent fill. Material shall not be placed on surfaces that are muddy, frozen, or contain frost. Compaction shall be accomplished by sheepsfoot rollers, pneumatic-tired rollers, steel-wheeled rollers, or other approved equipment well suited to the soil being compacted. Material shall be moistened or aerated as necessary to provide the moisture content that will readily facilitate obtaining the specified compaction with the equipment used. Minimum subgrade density shall be as specified in paragraph FILLING AND BACKFILLING.

3.11 FILLING AND BACKFILLING

Satisfactory materials shall be used in bringing fills and backfills to the lines and grades indicated and for replacing unsatisfactory materials. Satisfactory materials shall be placed in horizontal layers not exceeding 8 inches in loose thickness, or 6 inches when hand-operated compactors are used. After placing, each layer shall be plowed, disked, or otherwise broken up, moistened or aerated as necessary, thoroughly mixed and compacted as specified. Backfilling shall not begin until construction below finish grade has been approved, forms removed, and the excavation cleaned of trash and debris. Backfill shall be brought to indicated finish grade. Backfill

shall not be placed in wet or frozen areas. Heavy equipment for spreading and compacting backfill shall not be operated closer to foundation or walls than a distance equal to the height of backfill above the top of footing; the area remaining shall be compacted in layers not more than 4 inches in compacted thickness with power-driven hand tampers suitable for the material being compacted. Backfill shall not be placed against structure prior to the concrete attaining 70% of its design strength. As far as practicable, backfill shall be brought up evenly on each side of the structure and sloped to drain away from the wall. When there are separate structural and grading contracts, the Structural Contractor shall backfill box culverts to an elevation of 2 feet above the top of the box culvert. The Grading Contractor shall complete the remaining backfill in conjunction with grading operations. Each layer of fill and backfill shall be compacted to not less than the percentage of modified proctor maximum density specified below:

	Percent Laboratory maximum density	
	Cohesive material	Cohesionless material
Fill, embankment, and backfill		
Under structures, paved areas, around footings	90	90
Subgrade		
Under structures and paved areas, top 12 inches	95	95

Approved compacted subgrades that are disturbed by the Contractor's operations or adverse weather shall be scarified and compacted as specified herein before to the required density prior to further construction thereon. Recompaction over underground utilities and heating lines shall be by hand tamping.

3.12 TESTING

Testing shall be the responsibility of the Contractor and shall be performed at no additional cost to the Government. Testing shall be performed in accordance with SECTION 01451: CONTRACTOR QUALITY CONTROL.

3.12.1 In-Place Densities

In-place density and moisture content test results shall be included with the Contractor's daily construction quality control reports.

3.12.1.1 In-Place Density of Subgrades

One test per 100 linear feet or fraction thereof.

3.12.1.2 In-Place Density of Fills and Backfills

Not less than 1 test for each 2 vertical feet of fill per 100 linear feet or fraction thereof.

3.12.2 Optimum Moisture and Laboratory Maximum Density

Tests shall be made for each type material or source of material, including borrow material to determine the optimum moisture and laboratory maximum density values. One representative test per source, or when any change in material occurs which may affect the optimum moisture content or laboratory maximum density will be made.

3.13 GRADING

Areas within 5 feet outside of each structure line shall be constructed true-to-grade, shaped to drain, and shall be maintained free of trash and debris until final inspection has been completed and the work has been accepted.

3.14 TOPSOIL AND SEEDING

Placement of topsoil and seeding is specified in SECTION 02920: SEEDING, SODDING, AND TOPSOIL.

3.15 PROTECTION

Settlement or washing that occurs in graded, topsoiled, or backfilled areas prior to acceptance of the work, shall be repaired and grades reestablished to the required elevations and slopes.

SECTION 02316

EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITY AND STORM DRAINAGE SYSTEMS
11/00

1 GENERAL

1.1 RELATED WORK OF OTHER SECTIONS

Dewatering is covered in SECTION 01000: GENERAL. Material definitions, backfill compaction and testing requirements are covered in SECTION 02300: EARTHWORK, and SECTION 02630: STORM-DRAINAGE SYSTEM.

1.2 DEFINITIONS

Reference to pipes shall include culverts. Appurtenant structures include manholes, inlets, outlets, headwalls, or similar structures.

2 PRODUCTS

2.1 MATERIALS

In addition to the definitions below, material definitions shall be as specified in SECTION 02300: EARTHWORK.

2.1.1 Unyielding Material

Unyielding material shall consist of rock and gravelly soils with stones greater than 3 inches in any dimension or as defined by the pipe manufacturer, whichever is smaller.

2.1.2 Unstable Material

Unstable material shall consist of materials too soft and/or compressible to properly support the pipe or appurtenant structure.

2.1.3 Select Granular Material

3 EXECUTION

3.1 EXCAVATION

Unless otherwise indicated, trench excavation shall be by open cut except that short sections may be jacked or bored if the pipe can be safely and properly installed and ground loss can be properly controlled. All excavation shall be constructed in accordance with the Safety and Health Requirements Manual (EM 385-1-1) and/or OSHA Standards. Allowable trench widths, depths, side slopes, sheet and bracing requirements, and other considerations are given in the OSHA Standard; and an abbreviated version is given in the Safety and Health Requirements Manual.

Provide full access to public/private premises and fire hydrants so as to prevent serious disruption of travel. Protect and maintain benchmarks and monuments during excavations.

3.1.1 Trench Excavation

Excavation shall be performed to the lines and grades indicated. During excavation, material satisfactory for backfilling shall be stockpiled in a neat and orderly manner at a sufficient distance from the banks of the trench to avoid overloading and to prevent slides or caving. Topsoil shall be stockpiled separately from suitable backfill material. Grading shall be done as may be necessary to prevent surface water from flowing into the excavation, and any water accumulating therein shall be removed to maintain the stability of the bottom and sides of the excavation. Unauthorized over excavation shall be backfilled at no additional cost to the Government.

3.1.1.1 Bottom Preparation

The bottoms of trenches shall be accurately graded to provide uniform bearing and support for the bottom quadrant of each section of the pipe. Pipe shall rest on undisturbed or properly placed and compacted soil along its entire length. Bell holes shall be excavated to the necessary size at each joint or coupling to eliminate point bearing. Stones of 3 inches or greater in any dimension, or as recommended by the pipe manufacturer, whichever is smaller, shall be removed to avoid point bearing.

3.1.1.2 Unyielding Material

Where unyielding material is encountered in the bottom of the trench, such material shall be removed 8 inches below the required grade and replaced with select granular fill, except as provided below.

For levees, the replaced fill shall meet the requirements for the zone where it is located. Use of material more pervious than surrounding soils is not acceptable.

3.1.1.3 Unstable Material

Where wet, soft, unsuitable or otherwise unstable soil incapable of properly supporting pipe is encountered in the bottom of a trench or excavation, the Contractor shall immediately contact the Contracting Officer prior to proceeding with the associated work. When removal of unstable material is required due to inadequate shoring and sheeting, water removal, control of ground water or other similar operations, such unstable material shall be excavated and replaced with satisfactory material as directed at no additional cost to the Government.

3.1.1.4 Excavation for Appurtenances

Excavation for appurtenances shall be of sufficient size to permit the placement and removal of forms for the full length and width of structure footings and foundations as shown. Removal of unstable material shall be as specified above. When concrete is to be placed in an excavated area, special care shall be taken not to disturb the bottom of the excavation. Excavation to the final grade level shall not be made until just before the concrete is to be placed.

3.1.2 Stockpiles

Stockpiles of satisfactory material shall be placed and graded as specified. Stockpiles shall be kept in a neat and well drained condition, giving due consideration to drainage at all times. The ground surface at stockpile locations shall be cleared, grubbed, and sealed. Excavated satisfactory and unsatisfactory materials shall be separately stockpiled. Stockpiles of satisfactory materials shall be protected from contamination which may destroy the quality and fitness of the stockpiled material. If the Contractor fails to protect the stockpiles, and any material becomes unsatisfactory, such material shall be removed and replaced with satisfactory material from approved sources at no additional cost to the Government.

3.2 BACKFILLING AND COMPACTION

Backfilling shall not begin until construction below finish grade has been approved, storm drainage systems have been inspected, tested and approved; concrete forms have been removed and the excavation cleaned of frost, trash and debris. Backfill shall not be placed against foundation walls prior to 7 days after completion of the walls. As far as practicable, backfill shall be brought up evenly on each side of the wall. Trenches not immediately backfilled to grade shall be sloped to drain if practicable. Heavy equipment for spreading and compacting backfill shall not be operated closer to a foundation or other underground structural element than a distance equal to the height of backfill above the top of footing; the area remaining shall be compacted with power driven hand tampers suitable for the material being compacted.

Backfill shall consist of satisfactory material meeting the requirements shown and specified. Compaction and testing requirements for backfill shall be as stated in SECTION 02300: EARTHWORK.

3.2.1 Levees

Where pipes are located within the right of way of levees, all fill materials shall meet the type and classification for the fill zone shown on drawings, otherwise use same type of material for the zone where the trench is located. The portion of the trench in native soils shall be backfilled with the excavated material that matches the surrounding soils.

3.2.2 Bedding and Initial Backfill

Bedding shall be of the type and thickness shown. Initial backfill material shall be placed and compacted with manual tampers to a height above the pipe necessary to prevent damage, but not less than one foot. The backfill shall

be brought up evenly on both sides of the pipe for the full length of the pipe. Care shall be taken to ensure thorough compaction of the fill under the haunches of the pipe.

3.2.3 Backfill for Appurtenances

After the structure has been constructed and the concrete has been allowed to cure for 7 days, backfill shall be placed in such a manner that the structure will not be damaged by the shock of falling earth. The backfill material shall be deposited and compacted as specified for final backfill, and shall be brought up evenly on all sides of the structure to prevent eccentric loading and excessive stress.

SECTION 02388

STONE PROTECTION (RIPRAP)

01/01

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)

AASHTO M 288 (1996) Geotextile Specification for Highway Applications

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 4992 (1994) Evaluation of Rock to be Used for Erosion Control

CORPS OF ENGINEERS (COE)

EM 1110-2-1601 (1991) Hydraulic Design of Flood Control Channels

EM 1110-2-2302 (1990) Construction with Large Stone

NATIONAL INSTITUTE OF STANDARDS AND TECHNOLOGY (NIST)

NIST HB 44 (1997) NIST Handbook 44: Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices
North Dakota Department of Transportation (NDDOT) Standard Specifications for Road and Bridge Construction

NDDOT 709 (1997) Geotextile Fabrics

NDDOT 858 (1997) Geotextile Fabrics

1.2 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Geotextile Data; FIO.

Catalog cuts or technical data sheet shall be submitted for the geotextile showing that the product meets the specifications.

SD-08 Statements

Material Sources; GA.

The Contractor shall designate in writing only one source or one combination of sources from which he proposes to furnish stone. The Contractor shall state in writing methods of processing and handling riprap, and shall notify the Contracting Officer when production methods are changed.

SD-09 Reports

Gradation Test; FIO.

Gradation Test Results for riprap and aggregates. Riprap gradation testing results shall be submitted on the WORKSHEET FOR GRADATION ANALYSIS OF RIPRAP and the gradation curve (form 4055). A blank copy of each form is included at the end of this section.

SD-13 Certificates

Certified Weight Scale Tickets; FIO.

Copies of all certified weight scale tickets shall be furnished to the Contracting Officer at a frequency as directed. The tickets do not need to be formally submitted through the submittal process.

2 PRODUCTS

2.1 STONE SOURCES AND EVALUATION

Stone and aggregate materials may be quarried rock or durable fieldstone and shall be produced or obtained from the sources listed in SECTION 00830: ATTACHMENTS. If the Contractor proposes to furnish materials from a source not listed, the Government Geologist will make such investigations and evaluations as necessary to determine whether or not materials with acceptable durability can be produced from the proposed source. The rock supplied shall be composed of a quality fieldstone or be quarried from one rock formation to provide a product of uniform appearance. The Contractor shall not supply rock from various formations, or mix field stone with quarried rock, unless approved by the Contracting Officer. It is the Contractor's responsibility to determine that the stone source or combination of sources selected is capable of providing the quality, quantities and gradation needed and at the rate needed to maintain the scheduled progress of the work.

2.1.1 Alternate Sources

If the Contractor proposes to furnish stone materials from a source not listed in SECTION 00830: ATTACHMENTS, the Government Geologist will make such investigations and evaluations as necessary to determine whether or not materials meeting the requirements specified can be produced from the proposed source. Alternate sources from which the Contractor proposes to obtain stone materials shall be selected and submitted for approval at least 30 days in advance of the time when the material will be required.

2.1.2 Acceptance of Materials

Acceptance of a source of stone is not to be construed as acceptance of all material from that source. The right is reserved to reject materials from certain localized areas, zones, strata, or channels, when such materials are unsuitable for stone as determined by the Contracting Officer. The Contracting Officer also reserves the right to reject individual units of produced specified materials in stockpiles at the quarry, all transfer points, and at the project construction site when such materials are determined to be unsuitable.

2.2 RIPRAP

Riprap gradation shall meet the requirements for R20, R80, R270 riprap indicated on the attached FORM 4055 and EM 1110-2-1601, Table 3-1. The stone shall be well graded within the limits specified.

2.2.1 General

All stone shall be durable material. Stone for riprap shall have a specific gravity between 2.55 and 2.75 unless approved by the Contracting Officer. Stone shall be of a suitable quality to ensure permanence in the structure and in the climate in which it is to be used. It shall be free from cracks, blast fractures, bedding, seams and other defects that would tend to increase its deterioration from natural causes. The stone shall be clean and reasonably free from soil, quarry fines, and shall contain no refuse. Any foreign material adhering to or combined with the stone as a result of stockpiling shall be removed prior to placement. Neither the breadth nor the thickness of any piece of stone shall be less than one-third of its length. Occasional pieces of stone slightly larger than the maximum weight will be permitted provided the gradation and voids are not unduly affected and that surface tolerances are met.

2.2.2 Production

Riprap shall be handled and selectively loaded onto trucks in a manner to avoid segregation and provide a distribution of stone sizes consistent with the gradation band and test samples. Each truckload shall be representative of the gradation requirements.

2.3 GRANULAR FILTER

Granular filter material shall be satisfactory material containing not more than 12 percent by weight of material passing the No. 200 sieve.

2.4 GEOTEXTILE

Geotextile shall be non-woven and meet the requirements of **NDDOT 858**, geotextile fabric for riprap (Type RR).

2.5 SOURCE QUALITY CONTROL

Sampling and testing shall be performed by and at the expense of the Contractor at no additional cost to the Government. Gradation tests shall be performed by either Method A or B at the frequency listed below. A satisfactory gradation test shall be obtained prior to any hauling and delivery of materials. All tests, including failing tests shall be submitted. Tests performed on material which do not meet gradation and

shape requirements will not be counted as part of the tests required. The Contracting Officer shall be informed immediately of test results and draft copies of test results shall be furnished at the Contracting Officers request.

2.5.1 Sampling Requirements

The Contracting Officer shall direct the time and location of sampling, unless waived. Samples shall be taken from stockpiles or loaded trucks, and not directly from conveyers or chutes.

2.5.2 Riprap Gradation Testing

a. Notification. The Contracting Officer shall be informed 24 hours before each riprap test.

b. Testing Frequency. At least 1 gradation test shall be performed per source.

c. Sample Size. The sample shall have a minimum gross weight not less than 25 times the maximum stone size in the specified gradation ($25 * W_{100}$).

2.5.2.1 Riprap Test Method A

Test method A shall consist of weighing all stones larger than 5 pounds in a sample. Five to seven weight classes shall be selected within the range of stone sizes. Each stone shall be weighed and recorded on the work sheet for method A. The weight of stones shall be summed for each weight class; after which calculations and a plot of the gradation shall be completed in accordance with accepted practice for soil and aggregate gradations.

2.5.2.2 Riprap Test Method B

Test method B shall consist of separating the stones into 5 to 7 piles, ordered by size. The sample shall be separated on a clean, hard surface that is free of smaller stones that could become mixed with the sample. The stones shall be visually screened to place them into appropriate piles. All stones shall be separated and placed into a pile before weighing. After separating, the smallest and largest rock in each pile shall be weighed and recorded. The stones shall be adjusted as necessary so that the weight classes do not overlap. After adjustment is adequate and weight classes have been established, each pile of stone shall be weighed and recorded on the work sheet for method B. Calculations and a plot of the gradation shall be completed in accordance with accepted practice for soil and aggregate gradations.

2.6 STOCKPILES

Stockpiles shall be formed by a series of layers or truckload dumps, where the rock essentially remains where it is placed. Subsequent layers shall be started 10 feet from the edge of the previous layer so that the rock will not roll down the edges of the pile. Any stone which has become contaminated with soil or refuse shall not be put into the work unless the contaminating material has been removed prior to placement.

3 EXECUTION

3.1 CONSTRUCTION TOLERANCES

Work shall generally meet the required elevations, slope and grade; and the outer surfaces shall be even and present a neat appearance.

a. Subgrades. Areas on which stone protection will be placed shall be graded and/or dressed to conform to cross sections shown on the contract drawings within 2 inches above or below the neat lines. The surface shall be reasonably smooth to match tolerances normally obtained by rough grading with bladed equipment. For subaqueous construction in greater than 3 feet of water, the tolerance shall be 6 inches.

b. Layer Thickness. Any layers found to be less than 80% of the specified thickness shall be corrected. This tolerance shall only be exceeded on isolated spot checks, and if the tolerance is commonly exceeded, the Contractor shall change his construction methods to improve the quality control. If it is necessary to estimate riprap quantities for changes, the volume shall be based on neat line dimensions and the plan dimension for thickness. A conversion factor of 1.5 tons/CY shall be used to determine quantity requirements, unless otherwise directed by the Contracting Officer.

c. Surface Tolerances. The finished surface tolerance above the neat line shall generally not deviate from the lines and grades shown by more than half (1/2) the average stone dimension of the gradation range. Riprap that has a rough and uneven surface shall be reworked by hand to stabilize stones that wobble and are out of tolerance, except where the Contracting Officer approves use of equipment. Rearranging of individual stones shall be required to the extent necessary to obtain a well-graded distribution of stone sizes.

3.2 FOUNDATION PREPARATION

Foundation areas shall be excavated or filled to the lines and grades shown. Filling shall be with earth similar to the adjacent material and shall be well compacted. Immediately prior to placing riprap, the prepared subgrade will be inspected by the Contracting Officer unless waived; and no material shall be placed thereon until that area has been approved.

3.3 PLACEMENT OF GEOTEXTILE

3.3.1 Construction Requirements

Installation, overlapping fabric and equipment restrictions shall conform with requirements of NDDOT 709. Geotextile fabric shall be placed parallel to the direction of flow with the upstream panel overlapping the downstream panel at seams.

3.4 PLACEMENT OF RIPRAP

3.4.1 Layer Requirements

Riprap shall be placed in a manner which will produce a well-graded mass of rock with the minimum practicable percentage of voids. The large stones shall be well distributed. The finished riprap shall be free from objectionable pockets of small stones and clusters of larger stones.

3.4.2 Construction Methods

Unsegregated stone shall be placed in a systematic manner. Riprap shall be placed to its full course thickness in one operation and in such manner as to avoid displacing underlying material. Placement shall typically begin at the bottom of the area to be covered and continue up slope. Subsequent loads of material shall be placed against previously placed material in such a manner as to ensure a relatively homogenous mass. Final finish of slope shall be performed as the material is placed.

Placing riprap in layers will not be permitted. Placing riprap by dumping it into chutes, or by any method likely to cause segregation of the various sizes, shall not be permitted. Placing riprap by dumping it at the top of the slope and pushing it down the slope shall not be permitted. No equipment shall be operated directly on the completed stone protection system. Dump trucks shall be equipped with bottom hinged tailgates if rock is directly placed into position with the trucks.

3.4.3 Riprap Placement on Geotextile

Riprap shall be placed over the geotextile by methods that do not tear, puncture, or reposition the fabric. Equipment shall be operated so as to minimize the drop height of the stone without contacting and damaging the geotextile. Generally this will be about 1 foot of drop from the bucket to the placement surface. Riprap shall be placed so that stones do not roll downhill.

3.5 MAINTENANCE

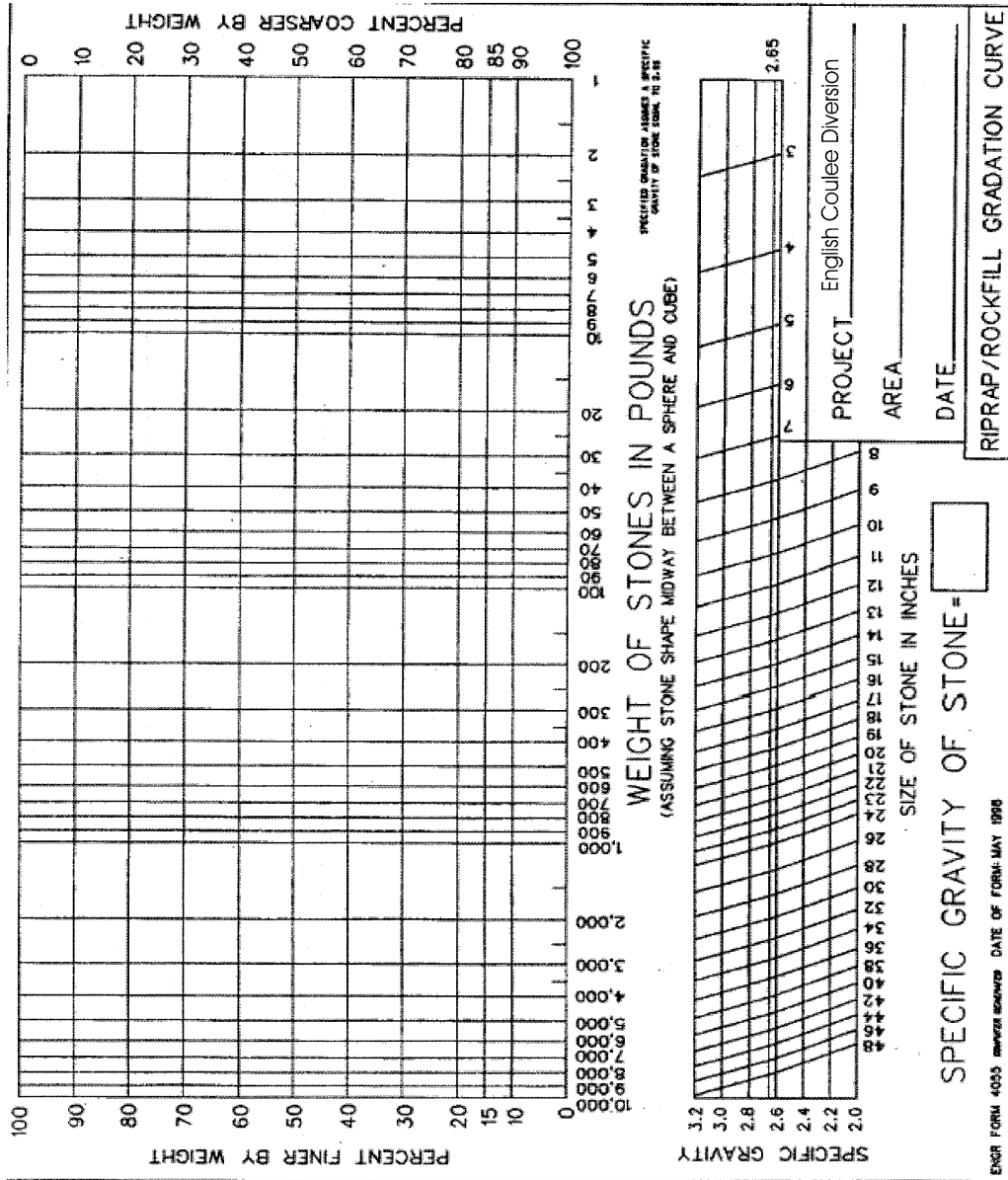
The Contractor shall maintain the stone protection and underlying works until accepted by the Contracting Officer. When appropriate, the Contractor shall place stone protection in a timely manner to reduce risk of scour. Any material displaced prior to acceptance and due to the Contractor's negligence or neglect shall be replaced at the Contractor's expense.

3.6 CONTRACTOR QUALITY CONTROL

The Contractor shall establish and maintain quality control for all work performed at the job site under this section to assure compliance with contract requirements. He shall maintain records of his quality control tests, inspections and corrective actions. Quality control measures shall cover all construction operations including, but not limited to, the placement of all materials to the slope and grade lines shown and in accordance with this section.

In addition to the Contractor's system to establish and maintain quality control for stone placement operations, the following information shall be recorded and promptly provided to the Contracting Officer on request:

- a. Record tonnage of stone placed in completed sections of the work and check quantity for compliance with design sections.
- b. Check for uniform thickness of material layers.



<p align="center">WORK SHEET FOR GRADATION ANALYSIS OF RIPRAP METHOD A</p>	
--	--

Project Name: _____

Date:

Riprap Type:

Test No.

Source, Quarry, or Pit:

Sample Location: _____

Test Made By:

Part 1. Weigh all stones larger than 5 pounds and record.

(1) PASSING WT.							5 lbs.
(2) RETAINED WT.						5 lbs.	PAN
(3)	----- -----						----- -----
(4) TOTALS							

Rows (1) & (2) Enter 5 to 7 weight classes to yield approx. 75%, 50%, 30%, and 15% finer points.

Row (3) List weight of each stone. Attach additional sheets if necessary.

Row (4) Add all individual stone weights listed in each column.

Part 2. Summary Table.

(5) WEIGHT CLASSES		(6) TOTAL WEIGHT EACH CLASS (lbs.)	(7) CUMMULATIVE WEIGHT PASSING (lbs.)	(8) TOTAL PERCENT PASSING (%)
PASSING (stone wt. in lbs.)	RETAINED (stone wt. in lbs.)			
	5 lbs.			
5 lbs.	PAN			
SAMPLE TOTAL			-----	-----

Column (5) Enter same weight classes used in Rows (1) and (2).

Column (6) Enter weights of material from Row (4)

Column (7) Add column (6) from bottom up to get cumulative weight passing.

Column (8) Divide column (7) by sample total to get total percent passing.

WORK SHEET FOR GRADATION ANALYSIS OF RIPRAP METHOD B

Project Name:	Date:
Riprap Type:	Test No.
Source, Quarry, or Pit:	
Sample Location:	Test Made By:

Part 1. Separate rock into 5 to 7 piles, ordered by size. The largest pile should contain 2 to 5 stones. Intermediate piles between the largest stones and those smaller than 5 pounds should be approximately equal in total weight. Separate all stones before weighing.

Part 2. Summary Table.

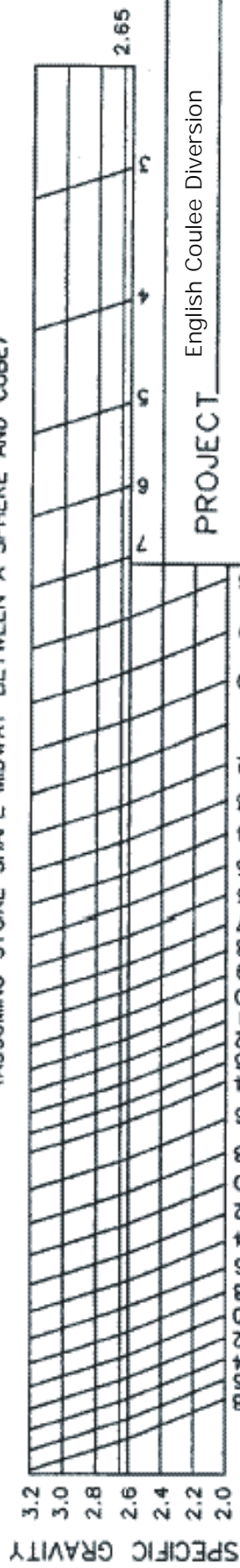
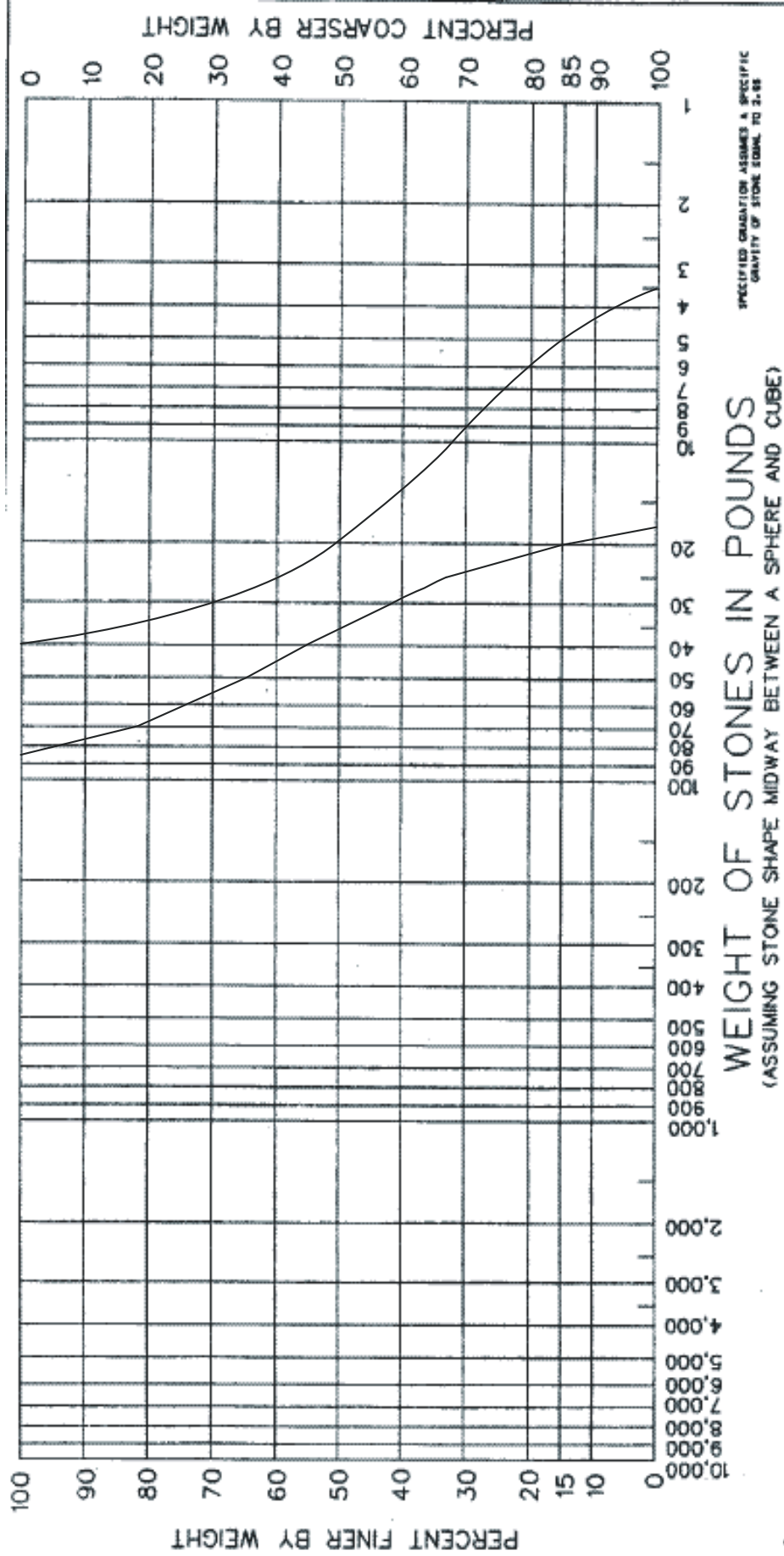
(1) WEIGHT CLASSES		(2)	(3)	(4)
PASSING (stone wt. in lbs.)	RETAINED (stone wt. in lbs.)	TOTAL WEIGHT EACH CLASS (lbs.)	CUMMULATIVE WEIGHT PASSING (lbs.)	TOTAL PERCENT PASSING (%)
	5 lbs.			
5 lbs.	PAN			
SAMPLE TOTAL			-----	-----

Column (1) Weight the smallest and largest stone in each pile. If weight classes overlap, adjust stones as necessary and repeat.

Column (2) Weigh the total amount of rock in each pile and record.

Column (3) Add column (2) from bottom up to get cumulative weight passing.

Column (4) Divide column (3) by sample total to get total percent passing.



PROJECT English Coulee Diversion

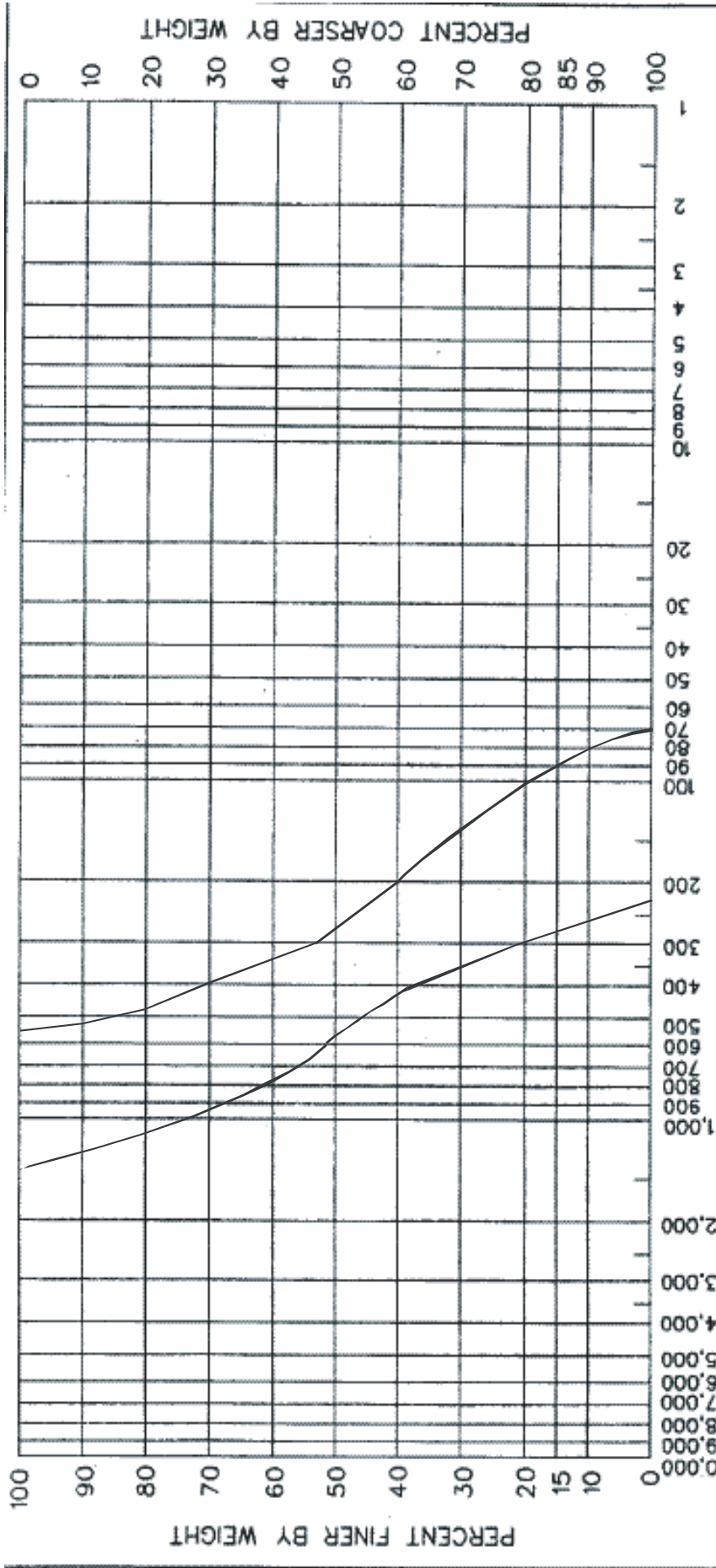
AREA

DATE 7/12/2000

RIPRAP/ROCKFILL GRADATION CURVE

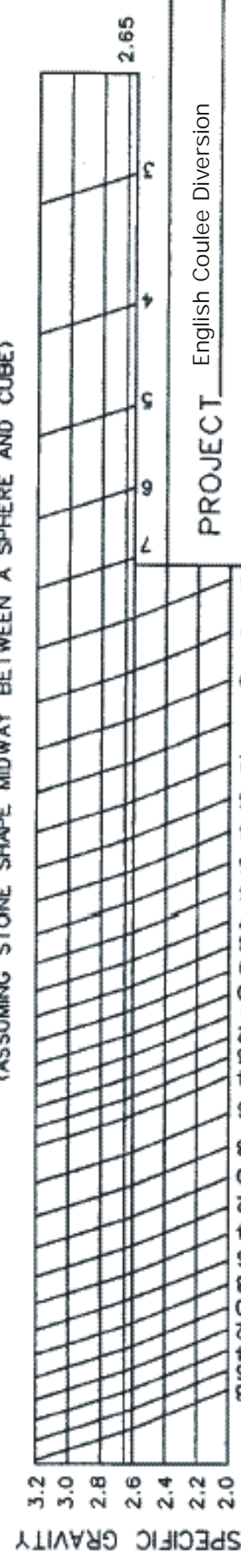
Type R20 Gradation (12" Thickness, 12" Gradation)

Specific Gravity of Rock 2.65



WEIGHT OF STONES IN POUNDS
(ASSUMING STONE SHAPE MIDWAY BETWEEN A SPHERE AND CUBE)

SPECIFIED GRADATION ASSUMES A SPECIFIC GRAVITY OF STONE EQUAL TO 2.65



PROJECT English Coulee Diversion

AREA

DATE 7/11/2000

RIPRAP/ROCKFILL GRADATION CURVE

Type R270 Gradation (30" Thickness, 30" Gradation)
Specific Gravity of Rock 2.65

TABLE 3-1A
STANDARD RIPRAP GRADATIONS, LOW OR HIGH TURBULENCE ZONES

Limits of Stone Weight (pounds), for Percent Lighter by Weight

ID ¹	D ₁₀₀ (max) ² [INCHES]	100		50		15		5 ³	
		MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN
Specific weight = 155pcf ⁴									
	12.4	90	40	40	20	20	5		
	14.4	140	60	60	30	30	10		
	16.2	200	80	80	40	40	10		
	20.4	400	160	160	80	80	30		
	24.0	650	260	280	130	130	40		
	27.7	1000	400	430	200	210	60		
	31.7	1500	600	650	300	330	100		
Specific weight = 165pcf ⁵									
R20	11.9	85	40	35	20	20	5	15	2
R30	14.1	140	60	60	30	30	10	25	5
R45	16.0	205	90	85	45	40	15	35	8
R80	20.0	400	160	170	80	80	25	65	15
R140	24.0	690	280	290	140	150	45	130	25
R270	30.0	1350	550	570	270	260	85	220	50

Notes:

1. The identifier (ID) designates Riprap gradation, and the approximate W₅₀(min) size in pounds.
2. Relationship between diameter and weight is based on the shape of a sphere.
3. Optional control of gradation.
4. Stone weight limit data from EM 1110-2-1601 (1 Jul 91), Appendix F, Table 6. Table 6 was developed by the Lower Mississippi Valley Division (LMVD) and was unintentionally omitted from the Engineering Manual.
5. Stone weight limit data developed by ED-GH branch for CENCS based on LMVD procedure.

SECTION 02456

STEEL H-PILES
01/01

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN INSTITUTE OF STEEL CONSTRUCTION (AISC)

Manual of Steel Construction

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 36 (1997a) Carbon Structural Steel

ASTM D 1143 (1981; R 1994e1) Piles Under Static Axial Compressive Load

ASTM D 3689 (1983) Testing Individual Piles Under Static Axial Tensile Load

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1 (1998) Structural Welding Code - Steel

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Equipment; FIO.

Description of pile driving equipment to be employed in the work, prior to commencement of pile installations; including details of the pile hammer, power plant, leads, cushion material, splicing device and helmet.

Product Technical Data; GA

Steel pile type, size, dimension, and grade of steel.

SD-04 Drawings

Fabricated Additions; GA.

Detail drawings of required fabricated additions to plain pile, prior to commencing work or ordering materials.

SD-08 Statements

Experience; FIO

Record of three of Contractor's past installations of required type of pile under similar soil conditions.

SD-09 Reports

Field Tests and Inspections; GA.

A complete report on the load test, including, but not limited to, a description of the pile driving equipment, driving records for the test pile and reaction piles, complete test data, analysis of test data, and recommended allowable design loads based on the load test results, within [7] seven days of completion of load test. The report shall be prepared by or under the direct supervision of a Registered Professional Engineer licensed in North Dakota experienced in pile load testing and load test analysis.

SD-13 Certificates

Materials; GA.

Certified copies of mill test reports for structural steel prior to commencement of pile installations.

SD-18 Records

Pile Driving; FIO.

A complete and accurate record of each driven pile, within 3 days of completion of driving. The record shall indicate the pile location (as driven), size, driven length, embedded length, final elevations of tip and top, pile weight, number of splices and locations, blows required for each foot of penetration throughout the entire length of the pile and for the final 6 inches of penetration, and the total driving time. The record shall also include the type and size of the hammer used, the rate of operation, and the type and dimensions of driving helmet and cushion block used. Any unusual conditions encountered during pile installation shall be recorded and immediately reported to the Contracting Officer.

1.3 EXPERIENCE

The work shall be performed by a general contractor or a specialty subcontractor specializing in the specified foundation system and having experience installing the specified foundation system under similar subsurface conditions.

1.4 SUBSURFACE DATA

Subsurface soil data logs are shown in the plan reference drawings. The subsurface investigation reports are available for examination.

2 PRODUCTS

2.1 MATERIALS

Piles shall be of sections, sizes, materials, and weights indicated. Tolerances for HP piles shall conform to requirements for "W" shapes as indicated in AISC Manual of Steel Construction. Pile tips as driven shall be square and blunt as received from the mill. Pile tip reinforcements or cast steel points occasionally may be required to obtain the required penetration. Steel shall conform to [ASTM A 36](#). Test piles shall be identical to those used elsewhere in the project.

2.2 EQUIPMENT

2.2.1 Pile Hammers

The hammer used shall have a delivered energy suitable for the total weight of the pile, the character of subsurface material to be encountered, and the pile capacity to be developed. The driving energy of the hammer shall be not less than 15,000 foot-pounds.

2.2.2 Driving Helmets and Pile Cushions

A driving helmet or cap, including a pile cushion, shall be used between the top of the pile and the ram to prevent impact damage to the pile. The driving helmet, or cap and pile cushion combination, shall be capable of protecting the head of the pile, minimizing energy absorption and dissipation, and transmitting hammer energy uniformly over the top of the pile. The driving helmet or cap shall fit loosely around the top of the pile so that the pile is not restrained by the driving cap if the pile tends to rotate during driving. The pile cushion may be made of solid wood or of laminated construction using plywood, softwood, or hardwood boards or other cushion material as approved by the Contracting Officer. The pile cushion shall completely cover the top surface of the pile and shall be retained by the driving helmet. The minimum thickness of the pile cushion shall be 3 inches and the thickness shall be increased so as to be suitable for the size and length of pile, character of subsurface material encountered, hammer characteristics, and required driving resistance.

3 EXECUTION

3.1 INSTALLATION

3.1.1 Pile Driving

Excavation shall be stopped at 1 foot above foundation grade before piles are driven. When pile driving is completed, excavation shall be completed to lines and grades shown. Piles shall be driven to or below the "calculated" tip elevation to reach a driving resistance in accordance with the schedule which the Contracting Officer will prepare from the load test results. The pile hammer used for driving shall be the same type, operated at the same rate and in the same manner, as that used for driving the test piles. Diesel-powered hammers shall be operated at the rate recommended by the manufacturer throughout the entire driving period. Sufficient pressure shall be maintained at the steam hammer so that: for a double-acting hammer, the number of blows per minute during and at the completion of driving of a pile is equal approximately to that at which the hammer is

rated; for a single-acting hammer, there is full upward stroke of the ram; for a differential type hammer, there is a slight rise of the hammer base during each upward stroke. A new pile cushion shall be used at the start of driving for each pile and the cushion shall be replaced whenever it has become highly compressed, charred, burned, or deteriorated in any manner during driving. Each pile shall be driven continuously and without interruption until the required depth of penetration and penetration rate per blow have been attained. If a pile fails to reach the "calculated" tip elevation or if a pile reaches the "calculated" tip elevation without reaching the required driving resistance, the Contractor shall notify the Contracting Officer and perform directed corrective measures.

3.1.2 Pre-Drilling

Pre-drilling of piles will not be permitted.

3.1.3 Jetting of Piles

Jetting of piles will not be permitted.

3.1.4 Long Piles

Piles shall be handled and driven carefully to prevent overstress or leaning from a true position. The pile-driving rig shall have sufficiently rigid supports so that the leads remain accurately aligned. Templates or guide frames shall be erected at or close to the ground or water surface.

3.1.5 Splices

Field splices shall be avoided for lengths under 60 feet. When authorized by the Contracting Officer, splices shall be of the full penetration butt-weld type. Unless otherwise authorized by the Contracting Officer, only one splice will be permitted per length of pile. Splices shall be designed and constructed to maintain the true alignment and position of the pile sections. Splices shall develop the full strength of the pile in both bearing and bending. Proprietary prefabricated splicer sleeves may be used upon prior approval by the Contracting Officer. Weld splicing device to piles per manufacturer's instructions.

3.1.6 Welding

Shop and field welding, qualification of welding procedures, welders, and welding operators shall be in accordance with AWS D1.1. Use E70 series electrodes meeting the requirements of AWS D1.1.

3.1.7 Tolerances in Driving

Top of pile at elevation of cut off shall be within 2 inches of the location indicated. Additionally, a variation in batter, as measured on the driven pile, of not more than 1/4 inch per foot of longitudinal axis will be permitted. Manipulation of piles to force them into position will not be permitted. Piles will be checked for heave. Piles found to have heaved shall be redriven to the required point elevation. Piles damaged or driven outside the above tolerances shall be replaced or additional piles driven at locations specified by the Contracting Officer at no expense to the Government.

3.1.8 Cutting of Piles

Piles shall be cut off at the elevations indicated by a method approved by the Contracting Officer. Obtain cutoff elevations from Foundation Plans and Details.

3.1.9 Protection

To the tips of all piles attach a steel tip protection device. Weld protection device to tip of pile in accordance with manufacturer's instructions.

3.2 FIELD TESTS AND INSPECTIONS

3.2.1 Test Pile

A test pile shall be driven in the manner specified elsewhere in this section. The Government will use test pile and load test data, as well as test reports on soil samples, to determine "calculated" pile tip elevations and the necessary driving resistance. Test piles that are located within the tolerances indicated and that provide a safe design capacity, as determined by the results of a satisfactory load test, may be used in the finished work. The Contractor shall drive one test pile as directed. Test pile shall be driven to the tip elevation specified or indicated for bidding lengths. If additional test piles are required by the Contracting Officer, the Contractor shall submit a request for a change order.

3.2.2 Load Test

The load test shall be in accordance with [ASTM D 1143](#). When approved by Soils Engineer, tests for uplift working capacity, where required, may be performed on piles used in the downward load carrying tests. Uplift working capacity test shall be in accordance with ASTM D 3689. The load tests at locations shown or directed shall be made on a test pile placed to the tip elevation used for establishing lengths of piles for bidding, except as otherwise directed by the Contracting Officer. Loading, testing, and recording of data shall be under the direct supervision of a Registered Professional Engineer in the State of North Dakota. A report shall be submitted in accordance with paragraph SUBMITTALS. The installation of contract piles shall not proceed in a new area with substantially different subsurface conditions until a satisfactory load test has been performed in that area and the results approved by the Contracting Officer. A minimum of 14 days from submission of the report shall be allowed for approval. In the event of failure of the testing system before tests are completed, repeat load test at no additional expense to the government.

3.2.3 Safe Design Capacity

Test piles shall be loaded to twice the anticipated working load unless failure occurs first. The safe design capacity of a load test as determined from the results of load tests shall be the lesser of the two values computed according to the following:

- a. One-half the load that causes a net settlement after rebound of not more than 0.01 inch per ton of total test load.

- b. One-half the load that causes a gross settlement of not more than 1 inch provided the load settlement curve shows no sign of failure.

SECTION 02464

METAL SHEET PILING
01/01

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 6 (1995b) General Requirements for Rolled Structural Steel Bars, Plates, Shapes, and Sheet Piling

ASTM A 325 Structural Bolts, Steel, Heat Treated, .20/105 ksi Minimum Tensile Strength

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

D1.1 Structural Welding Codes

D2.3 Structural Welding Code Sheet Steel

1.2 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Metal Sheet Piling; GA.

Detail drawings for sheet piling including fabricated sections shall show complete piling dimensions and details, driving sequence and location of installed piling. Detail drawings shall include details and dimensions of templates and other temporary guide structures for installing piling. Detail drawings shall provide details of the method of handling piling to prevent permanent deflection, distortion or damage to piling interlocks.

Design Calcs; FIO

Detailed design calculations of braced sheet piling support system including check of adequacy of existing sheet piling section.

Pile Driving Equipment; FIO

Complete descriptions of sheet piling driving equipment including hammers, extractors, protection caps and other installation appurtenances shall be submitted for approval prior to commencement of work.

SD-08 Statements

Pulling and Redriving; GA.

The proposed method of pulling sheet piling shall be submitted and approved prior to pulling any piling.

Qualifications; GA

Documentation of qualifications required for sheeting installer.

Materials Tests; FIO.

Certified materials tests reports showing that sheet piling and appurtenant metal materials meet the specified requirements shall be submitted for each shipment and identified with specific lots prior to installing materials. Material test reports shall meet the requirements of ASTM A 6.

SD-18 Records

Driving; FIO.

Records of the sheet piling driving operations shall be submitted after driving is completed. These records shall provide a system of identification which shows the disposition of approved piling in the work, driving equipment performance data, piling penetration rate data, piling dimensions and top and bottom elevations of installed piling. The format for driving records shall be as directed.

1.3 DELIVERY, STORAGE AND HANDLING

Materials delivered to the site shall be new and undamaged and shall be accompanied by certified test reports. The manufacturer's logo and mill identification mark shall be provided on the sheet piling as required by the referenced specifications. Sheet piling shall be stored and handled in the manner recommended by the manufacturer to prevent permanent deflection, distortion or damage to the interlocks.

2 PRODUCTS

2.1 METAL SHEET PILING

Metal sheet piling shall be continuously interlocking hot-rolled steel sections conforming to ASTM A 328. The interlocks of sheet piling shall be free-sliding, provide a swing angle suitable for the intended installation but not less than 5 degrees when interlocked, and maintain continuous interlocking when installed. Sheet piling shall be provided with standard pulling holes. Metalwork fabrication for sheet piling shall be as specified and in SECTION 05055: METALWORK FABRICATION, MACHINE WORK, AND MISCELLANEOUS PROVISIONS.

2.2 WELDING ELECTRODES

AWS D1.1 and D2.3 E70 Electrode.

2.3 APPURTENANT METAL MATERIALS

Metal plates, shapes, bolts, nuts, rivets and other appurtenant fabrication and installation materials shall conform to manufacturer's standards and to the requirements specified in the respective sheet piling standards and in Section 05502 MISCELLANEOUS METAL MATERIALS, STANDARD ARTICLES, AND SHOP FABRICATED ITEMS.

2.4 TESTS, INSPECTIONS, AND VERIFICATIONS

Requirements for material tests, workmanship and other measures for quality assurance shall be as specified and in Section 05055 METALWORK FABRICATION, MACHINE WORK, AND MISCELLANEOUS PROVISIONS.

2.4.1 Material Tests

Sheet piling and appurtenant materials shall be tested and certified by the manufacturer to meet the specified chemical, mechanical and section property requirements prior to delivery to the site. Testing of sheet piling for mechanical properties shall be performed after the completion of all rolling and forming operations. Testing of sheet piling shall meet the requirements of ASTM A 6.

3 EXECUTION

3.1 INSTALLATION

3.1.1 Pile Driving Equipment

Pile driving equipment shall conform to the following requirements.

3.1.1.1 Driving Hammers

Hammers shall be steam, air, or diesel drop, single-acting, double-acting, differential-acting, or vibratory type. The driving energy of the hammers shall be as recommended by the manufacturer for the piling weights and subsurface materials to be encountered.

3.1.2 Placing and Driving

3.1.2.1 Placing

Any excavation required within the area where sheet pilings are to be installed shall be completed prior to placing sheet pilings. Pilings to be placed in cofferdam cells and connecting arcs shall be picked up and completely threaded to demonstrate that they slide freely in interlock. Pilings shall be carefully located as directed by Soils Engineer. Pilings shall be placed plumb with out-of-plumbness not exceeding 1/8 inch per foot of length and true to line. Pilings properly placed and driven shall be interlocked throughout their length with adjacent pilings to form a continuous diaphragm throughout the length or run of piling wall.

3.1.2.2 Driving

Prior to driving pilings in water a horizontal line shall be painted on both sides of each piling at a fixed distance from the bottom so that it shall be visible above the water line after installation. This line shall indicate the profile of the bottom elevation of installed pilings and potential problem areas can be identified by abrupt changes in its elevation. Pilings shall be driven with the proper size hammer and by approved methods so as not to subject the pilings to damage and to ensure proper interlocking throughout their lengths. Caution shall be taken in the sustained use of vibratory hammers when a hard driving condition is encountered to avoid interlock-melt or damages. The use of vibratory hammers should be discontinued and impact hammers employed when the penetration rate due to vibratory loading is one foot or less per minute. Pilings damaged during driving or driven out of interlock shall be removed and replaced at the Contractor's expense. Damaged sheet piles include but are not necessarily limited to sheet piles bent, buckled, cracked, with fabrication tolerances beyond those indicated in ASTM A328, or with any other defect as determined by the Engineer would weaken the sheet pile. Piling shall be driven without the aid of a water jet. Adequate precautions shall be taken to insure that pilings are driven plumb. If at any time the forward or leading edge of the piling wall is found to be out-of-plumb in the plane of the wall the piling being driven shall be driven to the required depth and tapered pilings shall be provided and driven to interlock with the out-of-plumb leading edge or other approved corrective measures shall be taken to insure the plumbness of succeeding pilings. The maximum permissible taper for any tapered piling shall be 1/8 inch per foot of length. Pilings in each run or continuous length of piling wall shall be driven alternately in increments of depth to the required depth or elevation. No piling shall be driven to a lower elevation than those behind it in the same run except when the pilings behind it cannot be driven deeper. If the piling next to the one being driven tends to follow below final elevation it may be pinned to the next adjacent piling. Pilings shall not be driven within 100 feet of concrete less than 7 days old.

3.1.3 Inspection of Driven Piling

The Contractor shall inspect the interlocked joints of driven pilings extending above ground. Pilings found to be out of interlock shall be removed and replaced at the Contractor's expense.

3.1.4 Pulling and Redriving

In the pulling and redriving of piles as directed, the Contractor shall pull selected pilings after driving to determine the condition of the underground portions of pilings. Any piling so pulled and found to be damaged to the extent that its usefulness in the structure is impaired shall be removed and replaced at the Contractor's expense. Pilings pulled and found to be in satisfactory condition shall be redriven when directed.

3.2 REMOVAL

The removal of sheet pilings shall consist of pulling, sorting, cleaning the interlocks, inventorying and storing previously installed sheet pilings as shown and directed.

3.2.1 Pulling

The method of pulling piling must be approved. Extractors shall be of suitable type and size. Care shall be exercised during pulling of pilings to avoid damaging piling interlocks and adjacent construction. If the Contracting Officer determines that adjacent permanent construction has been damaged during pulling the Contractor will be required to repair this construction at no cost to the Government. Pilings shall be pulled one sheet at a time. Pilings fused together shall be separated prior to pulling unless the Contractor demonstrates to the satisfaction of the Contracting Officer that the pilings cannot be separated. The Contractor will not be paid for the removal of pilings damaged beyond structural use due to proper care not being exercised during pulling.

3.2.2 Sorting, Cleaning, Inventorying and Storing

Pulled pilings shall be sorted, cleaned, inventoried and stored by type into groups as:

- a. Piling usable without reconditioning.
- b. Piling requiring reconditioning.
- c. Piling damaged beyond structural use.

SECTION 02630

STORM-DRAINAGE SYSTEM
12/00

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ACI INTERNATIONAL (ACI)

ACI 346/346R (1990) Standard Specification for Cast-in-Place Nonreinforced Concrete Pipe and Recommendations

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS (AASHTO)

AASHTO HB-16 (1996) Standard Specifications for Highway Bridges

AASHTO M 198 (1998) Joints for Circular Concrete Sewer and Culvert Pipe Using Flexible Watertight Gaskets

AMERICAN RAILWAY ENGINEERING AND MAINTENANCE-OF-WAY ASSOCIATION (AREMA)

AREMA Manual (1999) Manual for Railway Engineering (4 Vol.)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 123 (1997ael) Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

ASTM C 14 (1999) Concrete Sewer, Storm Drain, and Culvert Pipe

ASTM C 76 (1999) Reinforced Concrete Culvert, Storm Drain, and Sewer Pipe

ASTM C 231 (1997el) Air Content of Freshly Mixed Concrete by the Pressure Method Clay Pipe and Fittings

ASTM C 443 (1998) Joints for Circular Concrete Sewer and Culvert Pipe, Using Rubber Gaskets

ASTM C 478	(1997) Precast Reinforced Concrete Manhole Sections
ASTM C 789	(1998) Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers
ASTM C 850	(1998) Precast Reinforced Concrete Box Sections for Culverts, Storm Drains, and Sewers with Less Than 2 Ft. of Cover Subjected to Highway Loadings
ASTM C 923	(1998) Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes and Materials
ASTM C 924	(1998) Concrete Pipe Sewer Lines by Low-Pressure Air Test Method
ASTM C 1103	(1994) Joint Acceptance Testing of Installed Precast Concrete Pipe Sewer Lines Sponge or Expanded Rubber
ASTM D 1171	(1994) Rubber Deterioration - Surface Ozone Cracking Outdoors or Chamber (Triangular Specimens)
ASTM D 1557	(1998) Laboratory Compaction Characteristics of Soil Using Modified Effort (56,000 ft-lbf/cu. ft. (2,700 kN-m/cu.m.))
ASTM D 1751	(1999) Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D 1752	(1984; R 1996el) Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D 2167	(1994) Density and Unit Weight of Soil in Place by the Rubber Balloon Method
ASTM D 2922	(1996el) Density of Soil and Soil-Aggregate in Place by Nuclear Methods (Shallow Depth)
ASTM D 3017	(1988; R 1996el) Water Content of Soil and Rock in Place by Nuclear Methods (Shallow Depth)

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-13 Certificates

Hydrostatic Test on Watertight Joints; FIO. Determination of Density; FIO. Frame and Cover; FIO.

Certified copies of test reports demonstrating conformance to applicable pipe specifications, before pipe is installed. Certification on the ability of frame and cover to carry the imposed live load.

1.3 DELIVERY, STORAGE, AND HANDLING

1.3.1 Delivery and Storage

Materials delivered to site shall be inspected for damage, unloaded, and stored with a minimum of handling. Materials shall not be stored directly on the ground. The inside of pipes and fittings shall be kept free of dirt and debris. The Contractor shall have a copy of the manufacturer's instructions available at the construction site at all times and shall follow these instructions unless directed otherwise by the Contracting Officer.

1.3.2 Handling

Materials shall be handled in a manner that ensures delivery to the trench in sound, undamaged condition. Pipe shall be carried to the trench, not dragged.

2 PRODUCTS

2.1 PIPE FOR CULVERTS AND STORM DRAINS

Pipe for culverts and storm drains shall be of the sizes indicated and shall conform to the requirements specified.

2.1.1 Concrete Pipe

ASTM C 76, Class III.

2.2 DRAINAGE STRUCTURES

2.2.1 Flared End Sections

ASTM C 76, Class III.

2.2.2 Precast Reinforced Concrete Box

For highway loadings with 2 feet of cover or more or subjected to dead load only, ASTM C 789; for less than 2 feet of cover subjected to highway loading, ASTM C 850.

2.3 MISCELLANEOUS MATERIALS

2.3.1 Concrete

Unless otherwise specified, concrete and reinforced concrete shall conform to the requirements for 4,000 psi concrete under Section 03300 CAST-IN-PLACE STRUCTURAL CONCRETE. The concrete mixture shall have air content by volume of concrete, based on measurements made immediately after discharge from the

mixer, of 5 to 7 percent when maximum size of coarse aggregate exceeds 1-1/2 inches. Air content shall be determined in accordance with [ASTM C 231](#). The concrete covering over steel reinforcing shall not be less than 1 inch thick for covers and not less than 1-1/2 inches thick for walls and flooring. Concrete covering deposited directly against the ground shall have a thickness of at least 3 inches between steel and ground. Expansion-joint filler material shall conform to [ASTM D 1751](#), or [ASTM D 1752](#), or shall be resin-impregnated fiberboard conforming to the physical requirements of [ASTM D 1752](#).

2.3.2 Mortar

Mortar for pipe joints, connections to other drainage structures, and brick or block construction shall conform to [ASTM C 270](#), Type M, except that the maximum placement time shall be 1 hour. The quantity of water in the mixture shall be sufficient to produce a stiff workable mortar. Water shall be clean and free of harmful acids, alkalies, and organic impurities. The mortar shall be used within 30 minutes after the ingredients are mixed with water. The inside of the joint shall be wiped clean and finished smooth. The mortar head on the outside shall be protected from air and sun with a proper covering until satisfactorily cured.

2.3.3 Precast Reinforced Concrete Manholes

Precast reinforced concrete manholes shall conform to [ASTM C 478](#). Joints between precast concrete risers and tops shall be made with flexible watertight, rubber-type gaskets meeting the requirements of paragraph JOINTS.

2.3.4 Frame and Cover

Frame and cover shall be cast gray iron, [ASTM A 48](#), Class 35B; cast ductile iron, [ASTM A 536](#), Grade 65-45-12; or cast aluminum, [ASTM B 26/B 26M](#), Alloy 356.OT6. Weight, shape, size, and waterway openings for grates shall be as indicated on the plans.

2.3.5 Joints

2.3.4.1 Flexible Watertight Joints

- a. Materials: Flexible watertight joints shall be made with plastic or rubber-type gaskets for concrete pipe. The design of joints and the physical requirements for plastic gaskets shall conform to [AASHTO M 198](#), and rubber-type gaskets shall conform to [ASTM C 443](#). Gaskets shall have not more than one factory-fabricated splice, except that two factory-fabricated splices of the rubber-type gasket are permitted if the nominal diameter of the pipe being gasketed exceeds 54 inches.
- b. Test Requirements: Watertight joints shall be tested and shall meet test requirements of paragraph HYDROSTATIC TEST ON WATERTIGHT JOINTS. Rubber gaskets shall comply with the oil resistant gasket requirements of [ASTM C 443](#). Certified copies of test results shall be delivered to the Contracting Officer before gaskets or jointing materials are installed. Alternate types of watertight joint may be furnished, if specifically approved.

2.4 STEEL LADDER

Steel ladder shall be provided. These ladders shall be not less than 16 inches in width, with 3/4 inch diameter rungs spaced 12 inches apart. The two stringers shall be a minimum 3/8 inch thick and 2-1/2 inches wide. Ladders and inserts shall be galvanized after fabrication in conformance with [ASTM A 123](#).

2.5 RESILIENT CONNECTORS

Flexible, watertight connectors used for connecting pipe to manholes and inlets shall conform to [ASTM C 923](#).

2.6 HYDROSTATIC TEST ON WATERTIGHT JOINTS

2.6.1 Concrete Pipe

A hydrostatic test shall be made on the watertight joint types as proposed. Only one sample joint of each type needs testing; however, if the sample joint fails because of faulty design or workmanship, an additional sample joint may be tested. During the test period, gaskets or other jointing material shall be protected from extreme temperatures which might adversely affect the performance of such materials. Performance requirements for joints in reinforced and nonreinforced concrete pipe shall conform to [AASHTO M 198](#) or [ASTM C 443](#).

3 EXECUTION

3.1 EXCAVATION FOR PIPE CULVERTS, STORM DRAINS, AND DRAINAGE STRUCTURES

Excavation of trenches, and for appurtenances and backfilling for culverts and storm drains, shall be in accordance with the applicable portions of SECTION [02316](#): "EXCAVATION, TRENCHING, AND BACKFILLING FOR UTILITIES SYSTEMS" and SECTION [02300](#): "EARTHWORK" and the requirements specified below.

3.1.1 Trenching

The width of trenches at any point below the top of the pipe shall be not greater than the outside diameter of the pipe plus 24 inches except in area of 18 inch seepage collars, to permit satisfactory jointing and thorough tamping of the bedding material under and around the pipe. Sheeting and bracing, where required, shall be placed within the trench width as specified. Contractor shall not overexcavate. Where trench widths are exceeded, redesign with a resultant increase in cost of stronger pipe or special installation procedures will be necessary. Cost of this redesign and increased cost of pipe or installation shall be borne by the Contractor without additional cost to the Government.

3.1.2 Removal of Rock

Rock in either ledge or boulder formation shall be replaced with suitable materials to provide a compacted earth cushion having a thickness between unremoved rock and the pipe of at least 8 inches or 1/2 inch for each foot of fill over the top of the pipe, whichever is greater, but not more than three-fourths the nominal diameter of the pipe. Where bell-and-spigot pipe

is used, the cushion shall be maintained under the bell as well as under the straight portion of the pipe.

3.1.3 Removal of Unstable Material

Where wet or otherwise unstable soil incapable of properly supporting the pipe, as determined by the Contracting Officer, is unexpectedly encountered in the bottom of a trench, such material shall be removed to the depth required and replaced to the proper grade with select granular material, compacted as provided in paragraph BACKFILLING. When removal of unstable material is due to the fault or neglect of the Contractor in his performance of shoring and sheeting, water removal, or other specified requirements, such removal and replacement shall be performed at no additional cost to the government.

3.2 BEDDING

The bedding surface for the pipe shall provide a firm foundation of uniform density throughout the entire length of the pipe.

3.2.1 Concrete Pipe Requirements

When no bedding class is specified or detailed on the drawings, concrete pipe shall be bedded in a soil foundation accurately shaped and rounded to conform to the lowest one-fourth of the outside portion of circular pipe or to the lower curved portion of pipe arch for the entire length of the pipe or pipe arch. When necessary, the bedding shall be tamped. Bell holes and depressions for joints shall be not more than the length, depth, and width required for properly making the particular type of joint.

3.3 PLACING PIPE

Each pipe shall be thoroughly examined before being laid; defective or damaged pipe shall not be used. Pipe shall be laid to the grades and alignment indicated. Proper facilities shall be provided for lowering sections of pipe into trenches. Pipe shall not be laid in water, and pipe shall not be laid when trench conditions or weather are unsuitable for such work. Diversion of drainage or dewatering of trenches during construction shall be provided as necessary.

3.3.1 Concrete Pipe

Laying shall proceed upgrade with spigot ends of bell-and-spigot pipe and tongue ends of tongue-and-groove pipe pointing in the direction of the flow.

3.3.2 Jacking Pipe Through Fills

Methods of operation and installation for jacking pipe through fills shall conform to requirements specified in Volume 1, Chapter 1, Part 4 of AREMA Manual.

3.4 JOINTING

3.3.3 Concrete Pipe

3.3.3.1 Flexible Watertight Joints

Gaskets and jointing materials shall be as recommended by the particular manufacturer in regard to use of lubricants, cements, adhesives, and other special installation requirements. Surfaces to receive lubricants, cements, or adhesives shall be clean and dry. Gaskets and jointing materials shall be affixed to the pipe not more than 24 hours prior to the installation of the pipe, and shall be protected from the sun, blowing dust, and other deleterious agents at all times. Gaskets and jointing materials shall be inspected before installing the pipe; any loose or improperly affixed gaskets and jointing materials shall be removed and replaced. The pipe shall be aligned with the previously installed pipe, and the joint pushed home. If, while the joint is being made the gasket becomes visibly dislocated the pipe shall be removed and the joint remade.

3.4 DRAINAGE STRUCTURES

3.4.1 Manholes

Construction shall be of precast reinforced concrete, complete with frames and covers or grates; and with fixed galvanized steel ladders. Pipe connections to concrete manholes and inlets shall be made with flexible, watertight connectors.

3.4.2 Walls and Headwalls

Construction shall be in accordance with SECTION 03300: CAST-IN-PLACE STRUCTURAL CONCRETE.

3.5 STEEL LADDER INSTALLATION

Ladder shall be adequately anchored to the wall by means of steel inserts spaced not more than 6 feet vertically, and shall be installed to provide at least 6 inches of space between the wall and the rungs. The wall along the line of the ladder shall be vertical for its entire length.

3.6 BACKFILLING

3.6.1 Backfilling Pipe in Trenches

After the pipe has been properly bedded, selected material from excavation or borrow, at a moisture content that will facilitate compaction, shall be placed along both sides of pipe in layers not exceeding 6 inches in compacted depth. The backfill shall be brought up evenly on both sides of pipe for the full length of pipe. The fill shall be thoroughly compacted under the haunches of the pipe. Each layer shall be thoroughly compacted with mechanical tampers or rammers. This method of filling and compacting shall continue until the fill has reached an elevation of at least 12 inches above the top of the pipe. The remainder of the trench shall be backfilled and compacted by spreading and rolling or compacted by mechanical rammers or tampers in layers not exceeding 12 inches. Tests for density shall be made as necessary to ensure conformance to the compaction requirements specified below. Where it is necessary, in the opinion of the Contracting Officer, that sheeting or portions of bracing used be left in place, the contract

will be adjusted accordingly. Untreated sheeting shall not be left in place beneath structures or pavements.

3.6.2 Backfilling Pipe in Fill Sections

For pipe placed in fill sections, backfill material and the placement and compaction procedures shall be as specified below. The fill material shall be uniformly spread in layers longitudinally on both sides of the pipe, not exceeding 6 inches in compacted depth, and shall be compacted by rolling parallel with pipe or by mechanical tamping or ramming. Prior to commencing normal filling operations, the crown width of the fill at a height of 12 inches above the top of the pipe shall extend a distance of not less than twice the outside pipe diameter on each side of the pipe or 12 feet, whichever is less. After the backfill has reached at least 12 inches above the top of the pipe, the remainder of the fill shall be placed and thoroughly compacted in loose layers not exceeding 12 inches.

3.6.3 Movement of Construction Machinery

When compacting by rolling or operating heavy equipment parallel with the pipe, displacement of or injury to the pipe shall be avoided. Movement of construction machinery over a culvert or storm drain at any stage of construction shall be at the Contractor's risk. Any damaged pipe shall be replace and joints repaired.

3.6.4 Compaction

3.6.4.1 General Requirements

Cohesionless materials include gravels, gravel-sand mixtures, sands, and gravelly sands. Cohesive materials include clayey and silty gravels, gravel-silt mixtures, clayey and silty sands, sand-clay mixtures, clays, silts, and very fine sands. When results of compaction tests for moisture-density relations are recorded on graphs, cohesionless soils will show straight lines or reverse-shaped moisture-density curves, and cohesive soils will show normal moisture-density curves.

3.6.4.2 Minimum Density

Backfill over and around the pipe and backfill around and adjacent to drainage structures shall be compacted at the approved moisture content to the following applicable minimum density, which will be determined as specified below.

- a. Under paved roads, including adjacent shoulder areas, the density shall be not less than 90 percent of maximum density for cohesive material and 95 percent of maximum density for cohesionless material, up to the elevation where requirements for pavement subgrade materials and compaction shall control. See SECTION 02300: EARTHWORK.
- b. Under unpaved roads, density shall not be less than 90 percent of maximum density for cohesive material and 95 percent of maximum density for cohesionless material.
- c. Under nontraffic areas and levees, density shall be not less than that of the surrounding material.

3.6.5 Determination of Density

Testing shall be the responsibility of the Contractor and performed at no additional cost to the Government. Testing shall be performed by an approved commercial testing laboratory or by the Contractor subject to approval. Tests shall be performed in sufficient number to ensure that specified density is being obtained. Laboratory tests for moisture-density relations shall be made in accordance with ASTM D 1557 except that mechanical tampers may be used provided the results are correlated with those obtained with the specified hand tamper. Field density tests shall be determined in accordance with ASTM D 2167 or ASTM D 2922. When ASTM D 2922 is used, the calibration curves shall be checked and adjusted, if necessary, using the sand cone method as described in paragraph Calibration of the referenced publications. ASTM D 2922 results in a wet unit weight of soil and when using this method ASTM D 3017 shall be used to determine the moisture content of the soil. The calibration curves furnished with the moisture gauges shall be checked along with density calibration checks as described in ASTM D 3017 or ASTM D 2922. Test results shall be furnished the Contracting Officer. The calibration checks of both the density and moisture gauges shall be made at the beginning of a job on each different type of material encountered and at intervals as directed.

3.7 PIPE TESTING

Pipes shall be tested for leakage by low pressure air or water testing or exfiltration tests, as appropriate. Low pressure air testing for concrete pipes shall conform to ASTM C 924. Low pressure air testing procedures for other pipe materials shall use the pressures and testing times prescribed in ASTM C 828 or ASTM C 924, after consultation with the pipe manufacturer. Testing of individual joints for leakage by low pressure air or water shall conform to ASTM C 1103. Prior to exfiltration tests, the trench shall be backfilled up to at least the lower half of the pipe. If required, sufficient additional backfill shall be placed to prevent pipe movement during testing, leaving the joints uncovered to permit inspection. Visible leaks encountered shall be corrected regardless of leakage test results. An exfiltration test shall be made by filling the line to be tested with water so that a head of at least 2 feet is provided above both the water table and the top of the pipe at the upper end of the pipeline to be tested. The filled line shall be allowed to stand until the pipe has reached its maximum absorption, but not less than 4 hours. After absorption, the head shall be reestablished. The amount of water required to maintain this water level during a 2-hour test period shall be measured. Leakage as measured by the exfiltration test shall not exceed 0.2 gallons per inch in diameter per 100 feet of pipeline per hour. When leakage exceeds the maximum amount specified, satisfactory correction shall be made and retesting accomplished. Testing, correcting, and retesting shall be made at no additional cost to the Government.

SECTION 02720

TEMPORARY BYPASS AND TRAFFIC CONTROL
11/00

1 GENERAL

1.1 REFERENCES

Temporary Bypass and Traffic Control used during construction to control the slow of traffic around construction activities shall meet the requirements specified in the 1997 North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction (NDDOT Standard Specifications) Sections:

704 Traffic Control

710 Temporary Bypass

Manual on Uniform Traffic Control Devices (MUTCD)

Standard Highway Signs (FHWA)

1.2 EXCEPTIONS

NDDOT Standard Specifications referenced above shall be followed for all construction, quality and testing procedures. The NDDOT Standard Specifications will not be followed when referencing to measurement, payment and deductions of the contract unit price. In addition, all testing will be the responsibility of the Contractor. Any reference in the NDDOT Standard Specifications to testing to be done by the Department shall be replaced with testing to be done by the Contractor. Quality Control will be the responsibility of the Contractor. The Contractor will perform quality control sampling, testing, and inspection during all phases of the work.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-08 Statements

Traffic Control Plan; FIO.

Contractor shall submit a traffic control plan to the Contracting Officer seven (7) days prior to the beginning of each stage of construction. The traffic control plan shall conform to standard plans and detour plans provided, and reference material sited above.

2 PRODUCTS

2.1 MATERIAL

All material and equipment used for traffic control or to construct temporary bypasses shall meet the requirements of the applicable specification section of the NDDOT Standard Specifications.

3 EXECUTION

3.1 GENERAL

The Contractor shall be responsible for providing traffic control during all phases of construction. This includes but is not limited to signing, striping, traffic detours, watch persons, flaggers, pilot cars, and any necessary precautions for protecting public, workers, and the work. Traffic control devices and placement shall meet the requirements of the traffic control plan details included in the plans and the standards and requirements of all reference materials.

SECTION 02722

AGGREGATE BASE OR SURFACE COURSE
11/00

1 GENERAL

1.1 REFERENCES

Aggregate Base Course and Aggregate Surface Course construction and materials shall meet the requirements specified in the 1997 North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction (NDDOT Standard Specifications) Sections:

- 151 General Equipment
- 203 Excavation and Embankment
- 230 Subgrade Preparation
- 302 Aggregate Base or Surface Course
- 812 Water
- 816 Aggregates

North Dakota Department of Transportation Field Sampling and Testing Manual.

1.2 MEASUREMENT AND PAYMENT

Deductions for payment referred to in the NDDOT Standard Specification will not be followed. However, requirements of the NDDOT Standard Specifications for acceptance shall be strictly adhered to. Material that does not meet the minimum requirements of the NDDOT Standard Specification shall be removed and replaced at the Contractor's expense.

NDDOT Standard Specifications referenced above shall be followed for all construction, quality and testing procedures. The NDDOT Standard Specifications will not be followed when referencing to measurement, payment and deductions of the contract unit price. In addition, all testing will be the responsibility of the Contractor. Any reference in the NDDOT Standard Specifications to testing to be done by the Department shall be replaced with testing to be done by the Contractor.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Schedules

Paving Schedule; FIO.

Submit paving schedule for aggregate surfacing seven (7) days prior to start of paving.

SD-09 Reports

Testing; FIO

A summary of sampling and testing results indicated in PARAGRAPH: TESTING shall be submitted when the road work is substantially complete.

2 PRODUCTS

2.1 REQUIREMENTS

All products shall meet the requirements of the specified sections of the NDDOT Standard Specifications. Aggregate gradations for aggregate base course and surface course specified in the NDDOT Standard Specifications shall be strictly adhered to.

3 EXECUTION

3.1 GENERAL

Furnishing, placing, compaction, preparation, and testing shall meet the requirements of the NDDOT Standard Specifications. Subgrade Preparation Type A shall be used; See paragraph 3.13.3 in SECTION 02300: EARTHWORK.

3.2 TESTING

3.2.1 General

All testing expenses shall be the Contractor's responsibility. Prior to sampling and testing the work, testing laboratories shall be inspected and approved in accordance with SECTION 01451: CONTRACTOR QUALITY CONTROL.

3.2.2 Transmittal

The Contracting Officer shall be informed of test results daily for direction or corrective action required. Draft copies of field testing results shall be submitted to the Contracting Officer within 24 hours of the test, as directed.

3.2.3 Corrective Action

Tests of materials which do not meet the contract requirements (failing tests) will not be counted as part of the required testing. Each such failing test must be retaken at the same location as the failing test was taken. If testing indicates material does not meet the contract requirements, the material represented by the failing test shall be removed. The quantity of material represented by the failing test shall be determined by the Contracting Officer up to the quantity represented by the testing frequency. The Contractor may increase testing frequency in the vicinity of a failing test in order to reduce removal requirements, as approved by the Contracting Officer. Such increases in testing frequency shall be at the Contractor's expense and at no additional cost to the Government.

3.2.4 Sampling

Sampling shall be done in accordance with AASHTO T-2 and T-248. Properties shall be determined from three random samples taken from the stockpile from each lot of 5,000 tons or fraction thereof.

3.2.5 Liquid Limit and Plasticity Index

Liquid Limit and Plasticity Index shall be tested in accordance with ASTM T-89 and T-90, respectively. Satisfactory results are specified in the NDDOT Standard Specifications, Section 816.

3.2.6 LA Abrasion

LA Abrasion shall be tested in accordance with AASHTO T-96. Satisfactory results are specified in the NDDOT Standard Specifications.

3.2.7 Sieve Analysis

Sieve Analysis shall be made in conformance with AASHTO T-27. Satisfactory results are specified in NDDOT Standard Specifications, Section 816.

3.2.8 Fractured Faces

Fractured Faces Analysis shall be performed in accordance with the NDDOT Field Sampling and Testing Manual. Satisfactory results are specified in NDDOT Standard Specifications, Section 816.

3.2.9 Moisture Density Determination

The maximum density and optimum moisture content shall be determined in accordance with AASHTO T-99.

3.2.10 Field Density and Water Content

In-place density shall be field verified in accordance with AASHTO D 2922. Water content shall be maintained during the compaction procedure to within plus or minus 3 percent of the optimum water content. Compactions shall continue until each layer has a degree of compaction that is at least 100 percent of the laboratory maximum density through the full depth of the layer. Testing shall occur at random intervals on every 1,000 SY of aggregate base or surface course installed or fraction thereof.

3.2.11 Subgrade Tolerances

See Paragraph 3.11.1 in SECTION 02300: EARTHWORK.

SECTION 02741

HOT-MIX ASPHALT (HMA) FOR ROADS
11/00

1 GENERAL

1.1 REFERENCES

Asphalt pavement construction and materials shall meet the requirements specified in the 1997 North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction (NDDOT Standard Specifications) Sections:

151 General Equipment

152 Hot Bituminous Equipment

401 Prime, Tack, or Fog Coat

408 Hot Bituminous Pavement

816 Aggregates

817 Bituminous Materials

North Dakota Department of Transportation Mix Design Procedures

North Dakota Department of Transportation Field Sampling and Testing Manual

1.2 MEASUREMENT AND PAYMENT

Deductions for payment referred to in the NDDOT Standard Specification will not be followed. However, requirements of the NDDOT Standard Specifications for acceptance of pavement shall be

strictly adhered to. Pavement that does not meet the minimum requirements of the NDDOT Standard Specification shall be removed and replaced at the Contractor's expense.

NDDOT Standard Specifications referenced above shall be followed for all construction, quality and testing procedures. The NDDOT Standard Specifications will not be followed when referencing to measurement, payment and deductions of the contract unit price. In addition, all testing will be the responsibility of the Contractor. Any reference in the NDDOT Standard Specifications to testing to be done by the Department shall be replaced with testing to be done by the Contractor. Quality Control will be the responsibility of the Contractor. The Contractor will perform quality control sampling, testing, and inspection during all phases of the work.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-07 Schedules

Paving Schedule; FIO

Submit paving schedule at least 7 days prior to start of paving.

SD-09 Reports

Testing; FIO.

The Contractor shall submit complete records of all quality control test and inspections. All test results and calculations will be recorded and documented on data sheets approved by the Contracting Officer. Data sheets shall list the mix design criteria, job mix formula, testing requirements and results.

Mix Design; GA.

At least ten days prior to placement of hot mix asphalt the Contractor shall submit the mix proportions that meet the requirements specified in the NDDOT Standard Specifications and that will produce hot mix asphalt of the quality required. The mix design will be developed according to the NDDOT Mix Design procedures. The mix design shall have the following properties:

Mix Design Criteria Chart

Mix Criteria -----	Top or wearing course -----		Bottom or non-wearing course -----	
	Minimum	Maximum	Minimum	Maximum
Blows to Marshall Plug	50	50	50	50
Stability (lbs)	1800		1800	
Flow, 0.01 in.	8	16	8	16
Air Voids	4		4	
Percent VMA	14	16	14	16
Fines/Asphalt Ratio	0.6	1.3	0.6	1.4

If aggregate or asphalt is utilized from sources other than those initially submitted with the mix design, the aggregate is processed using a different crusher, or if a different type or grade of asphalt is used, the Contractor shall notify the Contracting Officer in writing before incorporating the material into the work. If the Contracting Officer determines that a new mix design is required, the Contractor shall submit another mix design and submit it for approval.

Job Mix Formula (JMF)

The results of the mix design process is the Job Mix Formula. The JMF submitted shall contain the following:

1. The percentage of aggregate passing each of the specified sieves.
2. The percent asphalt cement to be added to the mixture.
3. The target air voids will be 4 percent.
4. The maximum specific gravity of the mixture obtained in the laboratory.
5. The bulk specific gravity of the mixture obtained in the laboratory.
6. The percent VMA of the mixture obtained in the laboratory.
7. The Stability of the mix.
8. Flow.

9. Calculated Film Thickness (Microns).*

10. Calculated Dust/Asphalt Ratio.**

2 PRODUCTS

All products shall meet the requirements of the specified sections of the NDDOT Standard Specifications. Aggregate shall be Class 33, as specified in the NDDOT Standard Specification, Section 816. Asphalt type and grade shall be as indicated on the plans.

3 EXECUTION

3.1 GENERAL

Refer to SECTION 02722: AGGREGATE BASE OR SURFACE COURSE for subgrade preparation and aggregate base.

Furnishing, paving, finishing, compaction, and installation of Hot Mix Asphalt Pavement shall meet the requirements of the specified sections of the NDDOT Standard Specifications.

3.2 TESTING

3.2.1 General

All testing expenses shall be the Contractor's responsibility. Prior to sampling and testing the work, testing laboratories shall be inspected and approved in accordance with SECTION 01451: CONTRACTOR QUALITY CONTROL.

3.2.2 Transmittal

The Contracting Officer shall be informed of test results daily for direction or corrective action required. Draft copies of field testing results shall be submitted to the Contracting Officer within 24 hours of the test, as directed.

3.2.3 Corrective Action

When a single test control limit has been exceeded, the Contractor will immediately re-sample and retest. If the re-sample exceeds the control limits, corrective action will be instituted by the Contractor

immediately. After the corrective action, the Contractor will immediately re-sample and retest. The corrective action will be documented.

Immediate shutdown will result when two consecutive tests exceed the single-test control limits for percent lightweight pieces of aggregate, percent fractured faces, or plastic index. Operations will resume when the Contracting Officer is satisfied that corrective action has been taken.

When the moving average values trend toward the moving-average control limits, the Contractor will take corrective action and increase the sampling and testing rate. The corrective action will be documented.

When the moving average of the control sieves or the bitumen exceeds the moving-average control limits, the Contractor may continue production if the air voids are within the control limits and the material passing the number 200 sieve does not exceed the maximum specified. The Contractor will take the necessary corrective action to produce mix based on the JMF or the Contractor may request that new target values be set if the production test results indicate adjustments to the target values are necessary.

When the moving average of the air voids exceeds the moving average control limit, the Contractor will immediately cease operations and take necessary corrective measures to get production back within the control limits. Quality control testing will resume as soon as the plant has started and operations are stabilized.

It will be the responsibility of the Contractor to shut down operations when the control limits are exceeded as specified. Failure to cease operations shall subject all material produced after exceeding the control limits to be considered unacceptable.

3.2.4 Testing Schedule

3.2.4.1 General

The Contractor shall sample and test the bituminous mix as outlined in the NDDOT Field Sampling Manual.

3.2.4.2 Requirements

Test requirements and frequencies are:

Test	Frequency	Single Test Control Limit	Moving Average Control Limit
Gradation	1/1500 tons	" & #4 Sieve : +/-6 #30 Sieve: +/-5 #200 Sieve: +/-2.0 +/-5	+/-5 +/-4 +/-1.5
Plastic Index	3/2000 tons	Not more than the maximum specified	
Lightweight Pieces of Aggregate	3/2000 tons	Not more than the maximum specified	
Fractured Faces	3/2000 tons	Not less than the maximum specified	
Maximum Sp. Gr. Of Bit. Mix (Rice Method)	1/1500 tons	Not more than the Maximum Specified	
Bulk Sp. Gr. Of Bit. Mix (Plugs) & Air Voids	1/1500 tons	2% to 6%	3% to 5%
% Asphalt Cement	1/1500 tons	+/-0.30	+/-0.24
% Density of Bit. Mix (Cores)	See Below	See Below	See Below

The content of the lightweight pieces of aggregate, plastic index, and fractured faces of the aggregate will be determined by the average of test results from three random samples taken from the cold feed belt for each lot of 2,000 tons or fraction thereof. If all samples pass, only one of the three samples taken will be tested until a sample fails; then the remaining two samples will be tested and averaged for the acceptance of that lot. The testing of three samples per lot will continue until all three samples pass, then one of the three samples will be tested from each lot.

The number of density test per lot and control limit will be as defined in Section 408.05 C Compaction of the NDDOT Standard Specifications.

SECTION 02754
CONCRETE PAVEMENT

11/00

1 GENERAL

1.1 REFERENCES

Concrete pavement construction and materials shall meet the requirements specified in the 1997 North Dakota Department of Transportation Standard Specifications for Road and Bridge construction (1997 NDDOT Standard Specifications). Sections:

153	Portland Cement Concrete Equipment
550	Portland Cement Concrete Pavement
802	Portland Cement Concrete
804	Cement
810	Concrete Curing Materials
812	Water
816	Aggregates
836	Reinforcing Steel

1.2 MEASUREMENT AND PAYMENT

Deductions for payment referred to in the NDDOT Standard Specification will not be followed. However, requirements of the NDDOT Standard Specifications for acceptance of concrete pavement shall be strictly adhered to. Concrete pavement that does not meet the minimum requirements of the NDDOT Standard Specification shall be removed and replaced at the Contractor's expense.

NDDOT Standard Specifications referenced above shall be followed for all construction, quality and testing procedures. The NDDOT Standard Specifications will not be followed when referring to measurement, payment, and deductions of contract unit price. In addition, all testing will be the responsibility of the Contractor. Any reference in the NDDOT Standard Specification to testing to be done by the Department shall be replaced with testing to be done by the Contractor.

1.3 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES.

SD-07 Schedules

Paving Schedule; FIO

Paving schedule at least 7 days prior to start of paving.

SD-09 Reports

Concrete Mixture Proportions; GA

At least ten days prior to placement of concrete, the Contractor shall submit the mixture proportions that meet requirements specified in the NDDOT Standard specifications and that will produce concrete of the quality required. Applicable test reports shall be submitted to verify that the concrete mixture proportions meet requirements specified in the NDDOT Standard specifications and will produce concrete of the quality specified.

Testing; FIO

A summary of testing results indicated in PARAGRAPH: TESTING shall be submitted when concrete work is substantially complete for each roadway.

2 PRODUCTS

2.1 MATERIALS

All products shall meet the requirements of the specified sections of the 1997 NDDOT Standard Specifications.

3 EXECUTION

3.1 GENERAL

Refer to SECTION 02722: AGGREGATE BASE OR SURFACE COURSE for subgrade preparation and aggregate base.

Paving, finishing, curing, joints, and testing shall meet the requirements of the specified sections of the 1997 NDDOT Standard Specifications.

3.2 TESTING

3.2.1 General

All testing expenses shall be the Contractor's responsibility. Prior to sampling and testing the work, testing laboratories shall be inspected and approved in accordance with SECTION 01451:CONTRACTOR QUALITY CONTROL.

3.2.2 Transmittal

The Contracting Officer shall be informed of test results daily for direction or corrective action required. Draft copies of field testing results shall be submitted to the Contracting Officer within 24 hours of the test, as directed.

3.2.3 Corrective Action

Tests of materials which do not meet the contract requirements (failing tests) will not be counted as part of the required testing. Each such

failing test must be retaken at the same location as the failing test was taken. If testing indicates material does not meet the contract requirements, the material represented by the failing test shall be removed. The quantity of material represented by the failing test shall be determined by the Contracting Officer up to the quantity represented by the testing frequency. The Contractor may increase testing frequency in the vicinity of a failing test in order to reduce removal requirements, as approved by the Contracting Officer. Such increases in testing frequency shall be at the Contractor's expense and at no additional cost to the Government.

3.2.4 Testing Schedule

a. Surface Smoothness

As soon as the concrete has sufficiently hardened, mainline pavement surfaces shall be testing to determine the Profile Index (PI) by using the Profilograph method prescribed in NDDOT Standard Specification Section 550. Satisfactory PI results are specified in NDDOT Standard specification, Section 550.

b. Coring

Coring to determine pavement thickness shall be taken after grinding is complete. Contractor shall take one core sample at random locations as directed by the Contracting Officer per 2,000 square yards or fraction thereof. Satisfactory coring results are specified in NDDOT Standard specifications, Section 550.

c. Strength Tests

Compressive or flexural tests shall be made to determine that concrete strength specified in NDDOT Standard Specification Section 550 is achieved prior to opening pavement to traffic.

Compressive test and flexural tests will be made and cured according to AASHTO T-32.

Concrete cylinders will be tested for compressive strength according to AASHTO T-22. 1 set of 5 cylinders per 4,000 square yards or fraction thereof shall be sampled and tested.

Concrete beams will be tested for flexural strength according to AASHTO T-97. 1 set of 3 beams per 4,000 square yards or fraction thereof shall be sampled and tested.

d. Tests for Uniformity

Uniformity will be tested by comparing slump, air content, and coarse aggregate content of 2 individual samples taken from approximately the 1/6 and 5/6 points of the batch as discharged at the site of placement. Satisfactory uniformity results are specified in NDDOT Standard Specification Section 802.

e. Unit Weight

The weight per cubic foot of concrete, batch volume, and cement content will be determined according to AASHTO T-121. One test per set of cylinders or

beams shall be sampled. Satisfactory results are specified in NDDOT
Standard Specification Section 802.

SECTION 02760

FIELD MOLDED SEALANTS FOR SEALING JOINTS IN RIGID PAVEMENTS

11/00

1 GENERAL

1.1 REFERENCES

Joint material construction and materials shall meet the requirements of the specified in the 1997 North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction (NDDOT Standard Specifications) Sections:

550 Portland Cement Concrete Pavement

826 Joint Materials

1.2 MEASUREMENT AND PAYMENT

NDDOT Standard Specifications referenced above shall be followed for all construction, quality and testing procedures. The NDDOT Standard Specifications will not be followed when referencing to measurement, payment and deductions of the contract unit price. In addition, all testing will be the responsibility of the Contractor. Any reference in the NDDOT Standard Specifications to testing to be done by the Department shall be replaced with testing to be done by the Contractor. Quality Control will be the responsibility of the Contractor. The Contractor will perform quality control sampling, testing, and inspection during all phases of the work.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES.

SD-13 Certificates

Product Information; FIO.

The Contractor shall submit product information and certification that verifies products meet the requirements specified in the NDDOT Standard Specifications, Section 826.

2 PRODUCTS

2.1 MATERIALS

Joint material in concrete pavement shall be Silicon Sealant. Material shall meet the requirements of the specified sections of the NDDOT Standard Specifications.

3 EXECUTION

3.1 GENERAL

Installation of joint material shall meet the requirements of the specified sections of the NDDOT Standard Specifications.

SECTION 02763

PAVEMENT MARKINGS
11/00

1 GENERAL

1.1 REFERENCES

Pavement marking materials and application shall meet the requirements specified in the 1997 North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction (NDDOT Standard Specifications) Sections:

762 Pavement Marking

880 Pavement Markings

1.2 MEASUREMENT AND PAYMENT

NDDOT Standard Specifications referenced above shall be followed for all construction, quality and testing procedures. The NDDOT Standard Specifications will not be followed when referencing to measurement, payment and deductions of the contract unit price. In addition, all testing will be the responsibility of the Contractor. Any reference in the NDDOT Standard Specifications to testing to be done by the Department shall be replaced with testing to be done by the Contractor.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-04 Drawings

Temporary Striping Layout; FIO.

A striping layout shall be prepared and submitted to the Contracting Officer seven (7) days prior to striping work for all temporary bypasses, traffic control, and detours included in the plans.

Striping Layout; FIO.

A project striping layout shall be prepared and submitted to the Contracting Officer seven (7) days prior to striping work. All proposed striping shall conform to existing conditions unless otherwise noted on the plans.

SD-13 Certificates

Materials; FIO.

All pavement marking materials shall meet the requirements outlined in the NDDOT Specifications Sections 762 and 880. Certification that the products meet these requirements shall be submitted to the Contracting Officer seven (7) days prior to striping work.

2 PRODUCTS

2.1 MATERIALS

All materials shall meet the requirements of the specified sections of the NDDOT Standard Specifications. Proposed striping material shall conform to existing conditions unless otherwise noted on the plans.

3 EXECUTION

3.1 GENERAL

Manufacturing, testing, and application of pavement markings shall meet the requirements of the NDDOT Standard Specifications.

SECTION 02821

FENCING

01/01

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 121	(1992a) Zinc-Coated (Galvanized) Steel Barbed Wire
ASTM A 153	(1998) Zinc-Coated (Hot Dip) on Iron and Steel Hardware
ASTM A 702	(1989; R 1994) Steel Fence Posts and Assemblies, Hot Wrought
ASTM A 780	(1993a) Repair of Damaged and Uncoated Areas of Hot-Dipped Galvanized Coatings
ASTM C 94	(1998) Ready-Mixed Concrete
ASTM F 1083	(1997) Specification for Pipe, Steel, Hot-Dipped Zinc-Coated (Galvanized) Welded, for Fence Structures

AMERICAN WOOD PRESERVERS ASSOCIATION (AWPA)

AWPA C1	(1997) All Timber products - Preservative Treatment by Pressure Processes
AWPA C4	(1995) Poles - Preservative Treatment by Pressure Processes

2 PRODUCTS

2.1 GATES

Gate shall be farm type, swing gate. Gate frames shall conform to strength and coating requirements of ASTM F 1083 for Group IA, steel pipe, with external coating Type A, nominal pipe size (NPS) 1-1/2. Latches, hinges, stops, and other hardware items shall be furnished as required for the operation of the gate. Latches shall be arranged for padlocking so that the padlock will be accessible from both sides of the gate. Stops shall be provided for holding the gates in the open position.

2.2 POSTS

2.2.1 Metal Posts for Farm Style Fence

Metal posts shall conform to **ASTM A 702** zinc-coated; length as indicated. Accessories shall conform to **ASTM A 702**.

2.2.2 Wood Posts

Wood posts shall be 3-1/2 inches in diameter and cut from sound and solid trees free from short or reverse bends in more than one plane. Tops shall be convex rounded or inclined. Posts shall be free of ring shake, season cracks more than 1/4 inch wide, splits in the end, and unsound knots. Size and shape of posts shall be as indicated. Posts shall be treated in accordance with **AWPA C1** or **AWPA C4** as applicable.

2.3 WIRE

2.3.1 Barbed Wire for Farm Style Fence

Barbed wire shall conform to ASTM A 121 zinc coated, Class 1, 12-1/2 gauge wire with 12-1/2 gauge 2-point barbs spaced no more than 4 inches apart.

2.4 ACCESSORIES

Ferrous accessories shall be zinc coated. Brace wire shall be 9 gauge steel wire and match the coating of the fence. Staples shall be 1-1/2 inches long and made of 9 gauge galvanized steel.

2.5 CONCRETE

ASTM C 94, using 3/4 inch maximum size aggregate, and having minimum compressive strength of 3000 psi at 28 days. Grout shall consist of one part portland cement to three parts clean, well-graded sand and the minimum amount of water to produce a workable mix.

3 EXECUTION

3.1 INSTALLATION

Fence shall be installed to the lines and grades indicated. The area on either side of the fence line shall be cleared to the extent indicated. Line posts shall be spaced equidistant at intervals not exceeding 10 feet. Terminal (corner, gate, and pull) posts shall be set at abrupt changes in vertical and horizontal alignment. Fence wire shall be continuous between terminal posts. Any damage to galvanized surfaces, including welding, shall be repaired with paint containing zinc dust in accordance with **ASTM A 780**.

3.2 EXCAVATION

Post holes shall be cleared of loose material. Waste material shall be placed in disposal fill. The ground surface irregularities along the fence line shall be eliminated to the extent necessary to maintain clearance between the bottom of the fence and finish grade.

3.3 POST INSTALLATION

3.3.1 Posts for Farm Style Fence

For wood posts, the Contractor shall excavate to depth indicated and brace post until backfill is completed. Backfill shall be placed in layers of 9 inches or less, moistened to optimum condition, and compacted with hand tampers or other approved method. Posts shall be set plumb and in proper alignment. Metal posts shall be driven or set in concrete as indicated.

3.4 RAILS

3.4.1 Horizontal Brace Rail

Brace rail shall be supported at each post to form a continuous brace between terminal posts.

3.5 BARBED WIRE

3.5.1 Barbed Wire for Farm Style Fence

Wire shall be installed on the side of the post indicated. Wire shall be pulled taut to provide a smooth uniform appearance, free from sag. Wire shall be fastened to line posts at approximately 9 inch intervals unless indicated otherwise.

3.6 GATE INSTALLATION

For farm style fencing, standard metal gate assemblies with frame and fittings necessary for complete installation shall be furnished.

SECTION 02920

SEEDING, SODDING, AND TOPSOIL
12/00

1 GENERAL

Wherever possible, all seed shall be drilled. Other seeding methods are subject to approval. Existing turf areas which have been damaged during the contract operations, and which are outside of the limits designated to be seeded, shall be restored following the requirements in this section, at no additional cost to the Government.

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AGRICULTURAL MARKETING SERVICE (AMS)

AMS-01 (Aug 95) Federal Seed Act Regulations Part 201

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 4972 (1995a) pH of Soils

ASTM D 5268 (1992; R 1996) Topsoil Used for Landscaping Purposes

AMERICAN SOD PRODUCERS ASSOCIATION, INC. (ASPA)

ASPA (1988) Guideline Specifications to Sodding

North Dakota Department of Transportation (NDDOT) Standard Specifications for Road and Bridge Construction

NDDOT 708 (1997) Erosion Control

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Manufacturer's Literature; FIO.

The Contractor shall submit manufacturer's literature discussing physical characteristics, applications, guarantees, and installation of the seed,

mulch, and fertilizer. The Contractor shall submit manufacturer's literature for equipment showing application and installation instructions.

SD-08 Statements

Experience for Native Grasses; FIO.

The Contractor shall submit a statement indicating that the work to establish the turf will be supervised by an individual with a minimum of 5 years experience with establishment and restoration of native plant communities.

SD-09 Reports

Soil Test; FIO.

Certified reports of inspections and laboratory tests, prepared by an independent testing agency, including analysis and interpretation of test results with recommendations for soil amendments. Each report shall be properly identified. Test methods used and compliance with recognized test standards shall be described.

Seed Test; FIO.

The Contractor shall submit test reports for a purity and germination test following the Association of Official Seed Analysts (AOSA) rules for each seed mixture. The test reports shall indicate the purity percentage, germination percentage, and amount of Pure Live Seed (PLS) per bag for each species.

Water Test; FIO

Water from sources other than municipal water supply shall be tested for salinity and pH.

SD-13 Certificates

Certificates of Compliance; FIO.

Prior to the delivery of materials, certificates of compliance attesting that materials meet the specified requirements. Certified copies of the material certificates shall include the following:

- a. Seed. Mixture percentage, percent pure live seed, percent germination, weed seed content, and date tested.
- b. Topsoil. Gradation, pH, organic matter content, textural class, soluble salts.
- d. Fertilizer. Chemical analysis and composition percent.
- e. Organic Material: Composition and source.
- g. Mulch: Composition and source.

SD-14 Samples

Samples; FIO

Samples shall be provided for the following:

- a. A 5 pound sample for each source of topsoil brought from off-site.
- b. A 2 pound sample for each type of soil amendment proposed for use.
- c. A 2 pound sample for each type of mulch proposed for use.

SD-18 Records

Quantity Check; FIO

Bag count or bulk weight measurements of material used compared with area covered to determine the application rate and quantity installed.

Maintenance Record; FIO

Maintenance work performed, area repaired or reinstalled, diagnosis for unsatisfactory stand of grass plants.

Seed Order for Native Grasses; FIO

Contractor shall submit proof of seed order for native grass seed mixes as specified within this section within 30 days of notice to proceed.

1.3 SOURCE INSPECTION

The source of delivered topsoil shall be subject to inspection.

1.4 DELIVERY, INSPECTION, STORAGE, AND HANDLING

1.4.1 Inspection

Seed shall be inspected upon arrival at the job site for conformity to species and quality. Seed materials shall be delivered in manufacturer's original, unopened containers with labels and tags intact and legible. Seed that is wet, moldy, or bears a test date five months or older, shall be rejected. Other materials shall be inspected for compliance with specified requirements. The following shall be rejected: open soil amendment containers or wet soil amendments; topsoil that contains slag, cinders, stones, lumps of soil, sticks, roots, trash or other material over a minimum 1-1/2 inch diameter; and topsoil that contains viable plants and plant parts. Unacceptable materials shall be removed from the job site.

1.4.2 Storage

Materials shall be stored on-site in areas provided by the Contractor. The storage areas shall be made accessible to the Contracting Officer so that application rates can be verified. Seed, lime, and fertilizer shall be stored in cool, dry locations away from contaminants. Chemical treatment materials shall be stored according to manufacturer's instructions and not with seed.

1.4.3 Handling

Except for bulk deliveries, materials shall not be dropped or dumped from vehicles.

1.4.4 Soil Amendments

Soil amendments shall be delivered to the site in the original, unopened containers bearing the manufacturer's chemical analysis. In lieu of containers, soil amendments may be furnished in bulk. A chemical analysis shall be provided for bulk deliveries.

2 PRODUCTS

2.1 SEED

Substitutions will not be allowed without written request and approval from the Contracting Officer. The mixing of seed may be done by the seed supplier prior to delivery, or on site in the presence of the Contracting Officer. Seed for native grass and forbe species shall be gathered from within 500 miles of the jobsite.

2.1.1 Seed Classification

State-certified seed of the latest season's crop shall be provided in original sealed packages bearing the producer's guaranteed analysis for mixture percentage, purity, germination, weed seed content, and inert material. Labels shall be in conformance with [AMS-01](#) and applicable state seed laws.

2.1.2 Permanent Seed Species and Mixtures

Use Class I or II as specified in ND/DOT Section 708. Permanent seed species and mixtures shall be proportioned by weight as follows:

Grass Species	Variety	Pounds
		Pure Live Seed Per Acre
<u>Class I</u>		
Western Blue Grass	Park	40
Perennial Rye Grass	--	<u>10</u>
		50
<u>Class II</u>		
Western Wheatgrass	Rodann or Rosanna	6
Switchgrass	ND-965-98, Nebraska 28, or Sunburst	3
Green Needlegrass	Lodorm	4
Sideoats Grama*	Killdeer or Pierre	4
Slender Wheatgrass	Revenue or Primar	<u>1</u>
		18

2.1.3 Temporary Seed Species

Seed species for winter erosion protection, temporary surface erosion control, or overseeding shall consist of 10 pounds of oats per acre.

2.1.4 Quality

Weed seed shall be a maximum 1/2 of 1 percent by weight of the total mixture. Innoculent shall consist of the proper bacteria applied in the amount and manner recommended by the manufacturer to all legumes in the seed mix.

2.2 SOD (OPTIONAL)

Sod shall be nursery grown as classified in the ASPA Guideline Specifications to Sodding. Sod shall be 100% mineral sod. Sod grown in peat soils will not be accepted. Sod shall consist of at least 75% Kentucky Blue Grass (*Poa pratensis*). Acceptable varieties include park, newport, glade, nugget, touch down, rugby, and parade.

2.2.1 Quality

Sod shall be machine cut at a uniform soil thickness of 5/8 inch, plus or minus 1/4 inch, at the time of cutting. Measurement of thickness shall exclude top growth and thatch. Standard size sections of sod shall be strong enough that when grasped at one end, can be picked up and handled without damage. Sod shall not be harvested or transplanted when moisture content, either excessively dry or wet, may adversely affect its survival. Broken pads and pads with torn or uneven ends will not be accepted. The pieces of sod shall not vary more than 1/2 inch in width.

2.2.2 Harvesting

Before harvesting, the turf shall be mowed uniformly at a height of 1 to 1-1/2 inches. Sod shall be harvested, delivered and transplanted within a period of 36 hours. Sod not transplanted within this time period shall not be installed without the inspection and approval of the Contracting Officer.

2.2.3 Delivery

Sod Pallets shall be sprinkled with water and covered with moist burlap, straw, or other approved covering and protected from exposure to wind and direct sunlight. Covering shall be such that air can circulate and heating will not develop.

2.3 TOPSOIL

Topsoil shall be as defined in [ASTM D 5268](#). Topsoil shall be free from slag, cinders, stones, lumps of soil, sticks, roots, trash or other material over 1-1/2 inch diameter. Topsoil shall be free from viable plants and plant parts.

2.4 SOIL AMENDMENTS

Soil amendments required under this contract consist of fertilizer. Soil amendments consisting of pH adjuster, organic material and soil conditioners may be added at the Contractors option if approved by the Contracting Officer, or shall be added if directed by the Contracting Officer and will be negotiated in accordance with contract clause: CHANGES.

2.4.1 Fertilizer

The nutrients ratio shall be 20 percent nitrogen, 20 percent phosphorus, and 20 percent potassium. Fertilizer shall be controlled release commercial grade, free flowing, and uniform in composition.

2.4.2 Organic Material

Organic material shall consist of either rotted manure, recycled compost, or worm castings. Bonemeal and decomposed wood derivatives shall not be used.

2.4.2.1 Rotted Manure

Rotted manure shall be unleached horse, chicken or cattle manure containing a maximum 25 percent by volume of straw, sawdust, or other bedding materials. It shall contain no chemicals or ingredients harmful to plants. The manure shall be heat treated to kill weed seeds and be free of stones, sticks, and soil.

2.4.2.2 Recycled Compost

Compost shall be a well decomposed, stable, weed free organic matter source. Compost shall be derived from vegetable food products; agricultural or industrial residuals; biosolids (treated sewage sludge); yard trimmings; or source-separated or mixed solid waste. The compost shall possess no objectionable odors and shall not resemble the raw material from which it was derived. The material shall not contain substances toxic to plants. Gradation: The compost material shall pass through a 3/8 inch screen, possess a pH of 5.5 to 8.0, and have a moisture content between 35-55 percent by weight. The material shall not contain more than 1 percent by weight of man-made foreign matter. Compost shall be cleaned of plastic materials larger than 2 inches in length.

2.5 MULCH

2.5.1 Straw Mulch

Straw mulch materials shall consist of wheat, oat, or rye straw, hay, grass, or other plants approved by the Contracting Officer. Mulch materials shall be native to the region. The mulch material shall be air dry, reasonably light in color, and shall not be musty, moldy, caked, or otherwise of low quality. The mulch shall be seed free or fumigated to prevent introduction of weeds. The use of mulch that contains noxious weeds will not be accepted. Dry mulching material which breaks and does not bend is unacceptable. Mulch shall have a consistency for placing with commercial mulch blowing equipment.

2.5.2 Paper Fiber

Paper fiber mulch shall be recycled news print that is shredded for the purpose of mulching seed.

2.6 WATER

Water shall be the responsibility of the Contractor, unless otherwise noted. Water shall not contain elements toxic to plant life.

2.7 PESTICIDE

Pesticide shall not be applied without written approval of the Contracting Officer.

2.8 HERBICIDE

Herbicide shall be broad spectrum that leaves no lasting harmful residues and allows planting within 10 to 14 days after application. The herbicide shall be glyphosate based. Herbicide shall be applied per manufacturer's recommendations.

3 EXECUTION

3.1 INSTALLING SEED TIME AND CONDITIONS

3.1.1 Notification

The Contractor shall notify the Contracting Officer 24 hours in advance of beginning seeding or any changes in turf establishment operations.

3.1.2 Seeding Time

Seed shall be installed before June 15 and after September 1, per ND/DOT Section 708. No finished construction area shall be left untopsoiled and unseeded during the winter months. When substantially complete areas are not seeded within the specified seeding times for fall planting, a temporary winter cover shall be placed.

3.1.3 Seeding Conditions

Seeding operations shall be performed only during periods when beneficial results can be obtained. When drought, excessive moisture, or other unsatisfactory conditions prevail, the work shall be stopped when directed. When special conditions warrant a variance to the seeding operations, proposed alternate times shall be submitted for approval.

3.2 SOIL TEST

Delivered topsoil, existing soil in smooth graded areas, and stockpiled topsoil shall be tested in accordance with ASTM D 5268 and ASTM D 4972 for determining the particle size, pH, and organic matter content. The samples shall be taken at locations directed by the Contracting Officer, unless waived. The tests shall determine the quantities and type of soil amendments required to meet local growing conditions for the seed species specified.

3.3 SITE PREPARATION

3.3.1 Finished Grade and Topsoil

The Contractor shall verify that finished grades are as indicated on drawings, and the placing of topsoil, smooth grading, and compaction requirements have been completed prior to the commencement of the seeding operation. All vegetation, including live roots, shall be completely removed or treated with herbicide prior to spreading topsoil or placing sod.

3.3.2 Spreading Topsoil

Topsoil shall be distributed and spread uniformly to one half the thickness shown on the plans and tilled to a depth of 2 inches into the subgrade. The remaining half of the topsoil shall then be placed. Surface irregularities resulting from topsoiling or other operations shall be leveled to prevent depressions.

3.3.2.1 Equipment

Topsoil shall be spread using a bladed dozer having ground pressure less than 4.5 psi and operating weight less than 35,000 pounds, or with rubber tired equipment having operating weight less than 10,000 pounds. The work shall be coordinated such that equipment for hauling the topsoil does not travel over the topsoil in place. Areas compacted by construction operations shall be completely pulverized by tillage.

3.3.2.2 Stripped Materials.

Topsoil obtained from stripping operations shall be kept separate from other unusable excavated materials, brush, litter, objectionable weeds, roots, stones, and other materials that would interfere with planting and maintenance operations. Unusable material shall be removed and properly disposed of.

3.3.3 Tillage

Topsoil on slopes up to a maximum 3H:1V slope shall be tilled to a nominal 3 inch depth by plowing, disking, harrowing, rototilling or other approved method. On slopes between 3H:1V and 1:1, the soil shall be tilled to a minimum 2 inch depth by scarifying with heavy rakes, or other method.

3.3.4 Treatments

Fertilizers shall be applied per manufacturer's directions. The fertilizer shall be applied at the rate recommended by the soil test. Fertilizer may be incorporated as part of the tillage operation. The Contractor shall assume full responsibility for any loss or damage to seed or sod arising from improper use of herbicides or other chemicals or due to failure to allow sufficient time to permit dissipation of toxic residues, whether or not such materials are specified herein.

3.3.5 Prepared Surface

The prepared surface shall be 1 inch below the adjoining grade of any surfaced area. New surfaces shall be blended to existing areas. The prepared surface shall be completed with a light raking to remove debris. Debris and stones over a minimum 1-1/2 inches in any dimension shall be removed from the surface. Drainage patterns shall be maintained as indicated on drawings. Tolerance for prepared surfaces shall be within 1 inch of the plan elevation. The prepared surface shall be protected from compaction or damage by vehicular or pedestrian traffic and surface erosion.

3.4 SEEDING

Prior to installing seed, any previously prepared surface compacted or damaged shall be reworked to meet the requirements of paragraph SITE PREPARATION. Seeding operations shall not take place when the wind velocity will prevent uniform seed distribution.

3.4.1 Equipment

Gravity feed applicators, which drop seed directly from a hopper onto the prepared soil, shall not be used because of the difficulty in achieving even coverage, unless otherwise approved.

3.4.2 Broadcast Seeding

In areas inaccessible to drill seeding, seed shall be broadcast by hand. Seed shall be uniformly broadcast at the rate specified for the mix. Half the total rate of seed application shall be sown with sower moving in one direction, and the remainder with sower moving at right angles to first sowing. Seed shall be covered a maximum 1/4 inch depth by disk harrow, steel mat drag, cultipacker, or other approved device. Seed shall not be broadcast when wind speed exceeds 5 miles per hour.

3.4.3 Drill Seeding

Seed shall be uniformly drilled to a depth of 1/2 to 3/4 inches at the rate specified for the mix. Equipment shall have drills a maximum 6 inches distance apart. Row markers shall be used with the drill seeder. Seed shall be drilled in two directions, applying approximately half the seed in each direction. The drilling equipment shall be maintained with half full seed boxes during the seeding operations. When slopes exceed 1 vertical on 5 horizontal, baffle plates spaced not more than 6 inches apart shall be installed in the seed box.

3.4.4 Hydroseeding (Optional)

The hydroseeding operation shall apply the seed, mulch, and fertilizer simultaneously. The seed shall be applied at the rate indicated in the Seed Mixture Table. The fertilizer shall be applied at a rate proposed by the Contractor and agreed to by the Contracting Officer. The mulch shall be applied at a rate of about 1 ton per acre. During application, the spray shall be directed to obtain a uniform material distribution as evidenced by a formation of a "blotter-like" cover, with about 5% void area. The mulch shall permit percolation of water to the underlying soil. The seed mixed with water and fertilizer shall be applied within 1 hour after adding to the tank.

3.4.5 Mulching

3.4.5.1 Hay or Straw Mulch

Hay or straw mulch shall be spread uniformly at the rate of 2 tons per acre, except as modified for native grasses. Mulch shall be spread by hand, blower-type mulch spreader, or other approved method. Mulching shall be started on the windward side of relatively flat areas or on the upper part of steep slopes, and continued uniformly until the area is covered. The mulch shall not be bunched or clumped. Sunlight shall not be completely

excluded from penetrating to the ground surface. All areas installed with seed shall be mulched on the same day as the seeding. Mulch shall be anchored immediately following spreading.

3.4.5.2 Mechanical Anchor

Mechanical anchor shall be a V-type-wheel land packer; a scalloped-disk land packer designed to force mulch into the soil surface; or other suitable equipment.

3.4.5.3 Wood Cellulose Fiber, Paper Fiber, and Recycled Paper

Wood cellulose fiber, paper fiber, or recycled paper shall be applied as part of the hydroseeding operation. The mulch shall be mixed and applied in accordance with the manufacturer's recommendations.

3.4.6 Initial Watering

Watering shall be started immediately after completing the seeding of an area. Water shall be applied to supplement rainfall at a rate sufficient to ensure moist soil conditions to a minimum 3 inch depth. Run-off and puddling shall be prevented. Watering trucks shall not be driven over turf areas, unless otherwise directed by Contracting Officer.

3.4.7 Native Grasses

Hay or straw mulch shall be spread uniformly at the rate of 2 tons per acre. Areas seeded with native grasses, except slopes steeper than 3H:1V, shall be firmed with a roller not exceeding 90 pounds per foot roller width. Seed drills equipped with rollers are acceptable.

3.5 SODDING (OPTIONAL)

3.5.1 Placement

Sod shall be carefully placed with the first row laid in a straight line and subsequent rows placed parallel to and abutted tightly against each other. Sod shall be placed with staggered end joints and without stretching or overlapping. On slope areas sodding shall be started at the bottom of the slope. On 1:3 or steeper slopes, sod shall be laid across the angle of the slope and secured by tamping, pegging or other approved methods of temporarily securing each piece. In areas where concentrated flow of water is expected, sod shall be laid at right angles to the flow. After the sodding operation has been completed, the edges of the sodded area shall blend smoothly into the surrounding area.

3.5.2 Rolling and Watering

After completion of the sod placement in each area, the Contractor shall water the sod immediately, and the entire area shall be lightly rolled. The sod shall be watered to a depth sufficient such that the underside of the sod pad and the soil immediately below the pad are thoroughly wet. Watering operations shall be properly supervised to prevent run-off. The Contractor shall arrange for an adequate water supply and all equipment necessary for water application shall be supplied including all pumps, hoses, pipelines, and sprinkling equipment until final acceptance is made.

3.6 RESTORATION AND CLEAN UP

Immediately upon completion of the seeding operation in an area, the area shall be protected against traffic or other use by erecting barricades, providing signage, or as directed by Contracting Officer. Existing turf areas, pavements, riprap areas and other project features that have been damaged from the seeding operation shall be restored to original condition at Contractor's expense. Excess and waste material shall be removed from the seeded areas and shall be disposed offsite. Adjacent paved areas shall be cleaned.

3.7 MAINTENANCE

3.7.1 Maintenance Watering

The Contractor shall be responsible for watering after planting to promote adequate growth and development. Water shall be distributed with equipment that does not erode or disturb the mulch. If the grass wilts, or if the soil becomes crusted and desiccated during germination, the Contracting Officer may direct watering. Watering directed by the Contracting Officer shall be performed within 48 hours after notice by the Contracting Officer to the Contractor; and shall place about 10,000 gallons per acre.

3.7.2 Mowing

- a. Bluegrass predominant seed mixes: Mowing shall be done as needed to maintain lawn areas at a nominal height of 3 inches until final acceptance, except not more than 1/3 of the grass leaf shall be removed by the initial cutting. Clippings shall be removed when the amount of cut turf is heavy enough to damage the turfed areas. Seeded areas shall be mowed immediately prior to final inspection.
- b. Native Grasses: Areas seeded with native grasses shall be mowed during the first growing season to control pioneering weeds and other competition. For the purposes of this project a weed is defined as any plant not included in the seed mix. Mowing should be done before the general height is 6 to 10 inches, or when the weedy foliar cover reaches 50 percent of the seeded area, or when the weed species begin to flower. The first mowing shall be set at a height of 3 inches with the following mowings to be set at a height of 4 to 8 inches. Rotary, flail, or sickle bar type mowing equipment is acceptable.

3.7.3 General Maintenance

Maintenance of the seeded areas shall include eradicating weeds, protecting embankments and ditches from surface erosion, maintaining erosion control materials and mulch, protecting installed areas from traffic, mowing, watering, and post-fertilization. If any portion of the surface becomes rilled, gullied, damaged, or destroyed, that portion shall be repaired to re-establish the area without additional cost to the government. The Contractor shall control erosion during the maintenance period by using ditch checks, sod swales, silt fences or other methods until a proper stand of turf is established.

3.7.3.1 Repair or Reinstall

Unsatisfactory stand of grass plants and mulch shall be repaired or reinstalled, and eroded areas shall be properly filled. Mulch material that has been removed by wind or other causes shall be replaced and secured. Maintenance shall include protecting embankments and ditches from erosion and maintaining erosion control material.

3.7.4 Maintenance Record

A record of each site visit shall be furnished, describing the maintenance work performed; areas repaired or reinstalled; and diagnosis for unsatisfactory stand of grass plants.

3.8 ACCEPTANCE

Turf establishment after seeding shall extend for 12 months after completion of the seeding on the entire project, unless desired growth is established, and shortening the period of the Contractor's responsibility for acceptably established areas is authorized by the Contracting Officer. Grass plants shall be evaluated for species and health when the grass plants are a minimum 1 inch high.

a. Bluegrass predominant seed mixes. A stand of turf is defined as a uniform stand of grass that is at least 2 inches tall with a minimum of 100 grass plants per square foot and reasonably free of weeds and visual imperfections as assessed by the Contracting Officer.

b. Native Grasses. A proper stand of turf from the seeding of native grasses is defined as a minimum of 2 to 4 plants per square foot and where no gaps larger than 6 inches in diameter occur anywhere in the turfed area. Only plants specified in the seed mix table will be considered.

3.9 SURFACE EROSION CONTROL

Where directed, surface erosion control material shall be installed in accordance with manufacturer's instructions. Placement of the material shall be accomplished without damage to installed material and deviation to finished grade. When directed by Contracting Officer and during contract delays affecting the seeding operation or when a quick cover is required to prevent surface erosion, the areas designated shall be seeded with a temporary seed crop.

SECTION 03100

STRUCTURAL CONCRETE FORMWORK
11/00

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ACI INTERNATIONAL (ACI)

ACI 347R (1994) Guide to Formwork for Concrete

AMERICAN HARDBOARD ASSOCIATION (AHA)

AHA ANSI/AHA A135.4 (1995) Basic Hardboard

DEPARTMENT OF COMMERCE (DOC)

DOC PS 1 (1996) Voluntary Product Standard -
Construction and Industrial Plywood

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-01 Data

Design; FIO.

Design analysis and calculations for form design and methodology used in the design.

Form Materials; FIO.

Manufacturer's data including literature describing form materials, accessories, and form releasing agents.

SD-04 Drawings

Concrete Formwork; FIO.

Drawings showing details of formwork, including dimensions of fiber voids, joints, supports, studding and shoring, and sequence of form and shoring removal. See SECTION 03300 for additional requirements of formwork drawings.

SD-06 Instructions

Form Releasing Agents; FIO.

Manufacturer's recommendation on method and rate of application of form releasing agents.

SD-13 Certificates

Fiber Voids; FIO.

Certificates attesting that fiber voids conform to the specified requirements.

SD-14 Samples

Fiber Voids; FIO.

One sample unit of fiber voids prior to installation of the voids.

1.3 DESIGN

Design and engineering of formwork, shoring and reshoring as well as its construction is the responsibility of the Contractor.

Formwork shall be designed by a Professional Structural Engineer currently registered in the State of North Dakota, having a minimum of 3 years experience in this type of design work and in accordance with methodology of ACI 347 for anticipated loads, lateral pressures, and stresses. Forms shall be capable of producing a surface which meets the requirements of the class of finish specified in SECTION 03300: CAST-IN-PLACE STRUCTURAL CONCRETE. Forms shall be capable of withstanding the pressures resulting from placement and vibration of concrete.

1.3.1 Design Requirements

Design formwork for loads, lateral pressures and allowable stresses outlined in ACI 347 and for design considerations, wind loads, allowable stresses and other applicable requirements of the controlling local building code. Where conflicts occur between the above two standards, the more stringent requirements shall govern. Design formwork to limit maximum deflection of form facing materials reflected in concrete surfaces exposed to view to 1/240 of span between structural members.

1.3.2 Form Removal

Develop a procedure and schedule for removal of shores and installation of reshores and for calculating the loads transferred to the structure during this process. Perform structural calculations as required to prove that all portions of the structure in combination with remaining forming and shoring system has sufficient strength to safely support its own weight plus the loads placed thereon. When developing procedure, schedule and structural calculations, consider the following at each stage of construction: The structural system that exists; effects of all loads during construction; strength of concrete; the influence of deformations of the structure and shoring system on the distribution of dead loads and construction loads; the strength and spacing of shores or shoring systems used, as well as the

method of shoring, bracing, shore removal, and reshoring including the minimum time intervals between the various operations; any other loading or condition that affects the safety of serviceability of the structure during construction.

2 PRODUCTS

2.1 FORM MATERIALS

2.1.1 Forms For Class A and Class B Finish (Exposed to View)

Forms for Class A and Class B finished surfaces shall be plywood panels conforming to [DOC PS 1](#), Grade B-B concrete form panels, Class I or II. Other form materials or liners may be used provided the smoothness and appearance of concrete produced will be equivalent to that produced by the plywood concrete form panels. Use full 4 foot x 8 foot panels unless smaller pieces will cover entire area. Forms for round columns shall be the prefabricated seamless type.

2.1.2 Forms For Class C Finish (Not Exposed to View)

Forms for Class C finished surfaces shall be shiplap lumber; plywood conforming to [DOC PS 1](#), Grade B-B concrete form panels, Class I or II; tempered concrete form hardboard conforming to [AHA ANSI/AHA A135.4](#); other approved concrete form material; or steel, except that steel lining on wood sheathing shall not be used. Forms for round columns may have one vertical seam.

2.1.3 Forms For Class D Finish (Concrete to be covered with soil)

Forms for Class D finished surfaces, except where concrete is placed against earth, shall be wood or steel or other approved concrete form material.

2.1.4 Stay-In-Place Forms

Ribbed expanded metal leave-in-place concrete forms commercially fabricated to provide an intentionally roughened surface. Hot-dipped galvanized. Similar to "Stay-Form" by Alabama Metal Industries Corporation.

2.1.5 Form Ties

Commercially fabricated for use in form construction. Do not use wire ties. Constructed so that ends or end fasteners can be removed without causing spalling at surfaces of the concrete. 3/4 inch minimum to 1 inch maximum diameter cones on both ends. Embedded portion of ties to be not less than 1-1/2 inch from face of concrete after ends have been removed.

2.1.6 Form Releasing Agents

Form releasing agents shall be commercial formulations that will not bond with, stain or adversely affect concrete surfaces. Agents shall not impair subsequent treatment of concrete surfaces depending upon bond or adhesion nor impede the wetting of surfaces to be cured with water or curing compounds.

2.1.7 Void Forms

Continuous void forms. Specially designed and manufactured for the purpose of creating a void area directly under concrete members which will allow a space for soil vertical upward movement. Able to support the weight of concrete and construction loads to be placed thereon with no decrease in required void form depth. Constructed from double faced corrugated cardboard or fiberboard which is wax impregnated and laminated with moisture-resistant adhesive. Capable of resisting moisture with no loss of load carrying strength or change in depth or configuration.

3 EXECUTION

3.1 INSTALLATION

3.1.1 Formwork

Install products in accordance with manufacturer's instructions. Make forms sufficiently tight to prevent loss of mortar from concrete. At construction joints, overlap contact surface of form sheathing for flush surfaces exposed to view over hardened concrete in previous placement by at least 1 inch. Hold forms against hardened concrete to prevent offsets or loss of mortar at construction joint and to maintain a true surface. Where possible, locate juncture of built-in-place wood or metal forms at architectural lines, control joints or at construction joints.

Construct wood forms for wall openings to facilitate loosening, if necessary, to counteract swelling. Anchor formwork to shores or other supporting surfaces or members so that movement of any part of formwork system is prevented during concrete placement. Provide runways for moving equipment with struts or legs, supported directly on formwork or structural member without resting on reinforcing steel. Provide positive means of adjustment (wedges or jacks) of shores and struts and take up all settlement during concrete placing operation. Securely brace forms against lateral deflection. Fasten wedges used for final adjustment of forms prior to concrete placement in position after final check.

Stay-In-Place Forms: Support stay-in-place forms as required to maintain the formwork in proper position. Hold the edge of stay-in-place forms back a minimum of 2 inches from all smooth formed concrete surfaces. Stay-in-place forms may be used at the Contractor's option at: Surfaces that will be backfilled with soil (Maintain a minimum of 3 inches of concrete cover over all reinforcing); roughened construction joints. Other locations approved by Engineer.

Provide temporary openings at base of column and wall forms and at other points where necessary to facilitate cleaning and observation immediately before concrete is placed, and to limit height of free fall of concrete to prevent aggregate segregation. Temporary openings to limit height of free fall of concrete shall be spaced no more than 8 FT apart. Clean surfaces of forms, reinforcing steel and other embedded materials of any accumulated mortar or grout from previous concreting and of all other foreign material before concrete is placed.

3.1.2 Fiber Voids

Voids shall be placed on a smooth firm dry bed of suitable material, to avoid being displaced vertically, and shall be set tight, with no buckled cartons, in order that horizontal displacement cannot take place. Each section of void shall have its ends sealed by dipping in paraffin, with any additional cutting of voids at the jobsite to be field dipped in the same type of sealer, unless liners and flutes are completely impregnated with paraffin. Prior to placing reinforcement, the entire formed area for slabs shall be covered with a 4 x 8 feet minimum flat sheets of fiber void corrugated fiberboard. Joints shall be sealed with a moisture resistant tape having a minimum width of 3 inches. If voids are destroyed or damaged and are not capable of supporting the design load, they shall be replaced prior to placing of concrete. Install in accordance with manufacturer's instructions.

3.2 CHAMFERING

Except as otherwise shown, place 3/4 inch chamfer strips in exposed to view corners of forms to produce 3/4 inch wide beveled edges.

3.3 COATING

Forms for Class A and Class B finished surfaces shall be coated with a form releasing agent before the form or reinforcement is placed in final position. The coating shall be used as recommended in the manufacturer's printed or written instructions. Forms for Class C and D finished surfaces may be wet with water in lieu of coating immediately before placing concrete, except that in cold weather with probable freezing temperatures, coating shall be mandatory. Surplus coating on form surfaces and coating on reinforcing steel and construction joints shall be removed before placing concrete.

3.4 REMOVAL OF FORMS

No construction loads shall be supported on, nor any shoring removed from, any part of the structure under construction except when that portion of the structure in combination with remaining forming and shoring system has sufficient strength to safely support its weight and loads placed thereon. When required for concrete curing in hot weather, required for repair of surface defects or when finishing is required at an early age, remove forms as soon as concrete has hardened sufficiently to resist damage from removal operations or lack of support. Remove top forms on sloping surfaces of concrete as soon as concrete has attained sufficient stiffness to prevent sagging. Perform any needed repairs or treatment required on such sloping surfaces at once, followed by curing specified in SECTION 03300. Loosen wood forms for wall openings as soon as this can be accomplished without damage to concrete. Formwork for columns, walls, sides of beams, and other parts not supporting weight of concrete may be removed as soon as concrete has hardened sufficiently to resist damage from removal. Where no reshoring is planned, leave forms and shoring used to support weight of concrete in place until concrete has attained its specified 28-day compressive strength as determined by field cured cylinders or other approved methods. This strength shall be demonstrated by job-cured test specimens, and by a structural analysis considering the proposed loads in relation to these test strengths and the strength of forming and shoring system. The job-cured test specimens for form removal purposes shall be provided in numbers as

directed and shall be in addition to those required for concrete quality control. The specimens shall be removed from molds at the age of 24 hours and shall receive, insofar as possible, the same curing and protection as the structures they represent. Where a reshoring procedure is planned, supporting formwork may be removed when concrete has reached the concrete strength required by the formwork designer's structural calculations. When shores and other vertical supports are so arranged that non-load-carrying form facing material may be removed without loosening or disturbing shores and supports, facing material may be removed when concrete has sufficiently hardened to resist damage from removal.

3.5 RESHORING

No construction loads shall be supported on, nor any shoring removed from, any part of the structure under construction except when that portion of the structure in combination with remaining forming and shoring system has sufficient strength to safely support its weight and loads placed thereon. While reshoring is underway, no superimposed dead or live loads shall be permitted on the new construction. During reshoring do not subject concrete in structural members to combined dead and construction loads in excess of loads that structural members can adequately support. Place reshores as soon as practicable after stripping operations are complete but in no case later than end of working day on which stripping occurs. Tighten reshores to carry their required loads without overstressing. Where no reshoring is planned, leave forms and shoring used to support weight of concrete in place until concrete has attained its specified 28-day compressive strength. Where a reshoring procedure is planned, supporting formwork may be removed when concrete has reached the concrete strength required by the formwork designer's structural calculations. For floors supporting shores under newly placed concrete leave original supporting shores in place or reshore. Reshoring system shall have a capacity sufficient to resist anticipated loads. Locate reshores directly under a shore position above.

3.6 TOLERANCES FOR FORMED SURFACES

1. Variations from the plumb:

- | | |
|---|---|
| a. In the lines and surfaces of columns, piers, walls and in arises | In any 10 feet of length ----- 1/4 inch
Maximum for entire length ----- 1/2 inch |
| b. For exposed corner columns, control-joint grooves, and other conspicuous lines | In any 20 feet of length ----- 1/4 inch
Maximum for entire length ----- 1/2 inch |

2. Variation from the level or from the grades indicated on the drawings:

- | | |
|---|--|
| a. In slab soffits, ceilings, beam soffits, and in arises, measured before removal of | In any 10 feet of length ----- 1/4 inch
In any bay or in any 20 feet of length ----- 3/8 inch |
|---|--|

supporting shores	Maximum for entire length ----- 3/4 inch
b. In exposed lintels, sills, parapets, horizontal grooves, and other conspicuous lines	In any bay or in any 20 feet of length ----- 1/4 inch Maximum for entire length----- 1/2 inch
3. Variation of the linear building lines from established position in plan	In any 20 feet ----- 1/2 inch Maximum -----1 inch
4. Variation of distance between walls, columns, partitions	1/4 inch per 10 feet of distance, but not more than 1/2 inch in any one bay, and not more than 1/2 inch total variation
5. Variation in the sizes and locations of sleeves, floor openings, and wall opening	Minus ----- 1/2 inch Plus ----- 1/2 inch
6. Variation in cross-sectional dimensions of columns and beams and in the thickness of slabs and walls	Minus ----- 1/4 inch Plus ----- 1/2 inch
7. Footings:	
a. Variation of dimensions in plan	Minus ----- 1/2 inch Plus ----- 2 inches when formed or plus 3 inches when placed against unformed excavation
b. Misplacement of eccentricity	2 percent of the footing width in the direction of misplacement but not more than 2 inches
c. Reduction in thickness of specified thickness	Minus ----- 5 percent Plus ---- No limit except that which may interfere with other construction
8. Variation in steps:	
a. In a flight of stairs	Riser ----- 1/8 inch Tread ----- 1/4 inch
b. In consecutive steps	Riser ----- 1/16 inch Tread ----- 1/8 inch

Establish and maintain in an undisturbed condition and until final completion and acceptance of Project, sufficient control points and bench

marks to be used for reference purposes to check tolerances. Regardless of tolerances listed allow no portion of structure to extend beyond legal boundary of Project. To maintain specified tolerances, camber formwork to compensate for anticipated deflections in formwork prior to hardening of concrete.

SECTION 03150

EXPANSION JOINTS, CONTRACTION JOINTS, AND WATERSTOPS
11/00

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 920	(1995) Elastomeric Joint Sealants
ASTM D 471	(1996) Rubber Property - Effect of Liquids
ASTM D 994	Standard Specification for Preformed Expansion Joint Filler for Concrete (Bituminous Type)
ASTM D 1056	Standard Specification for Flexible Cellular Materials Sponge or Expanded Rubber
ASTM D 1190	(1996) Concrete Joint Sealer, Hot-Applied Elastic Type Joint Sealers
ASTM D 1191	(1984) Test Methods for Concrete Joint Sealers
ASTM D 1751	(1983; R 1991) Preformed Expansion Joint Filler for Concrete Paving and Structural Construction (Nonextruding and Resilient Bituminous Types)
ASTM D 1752	(1984; R 1996) Preformed Sponge Rubber and Cork Expansion Joint Fillers for Concrete Paving and Structural Construction
ASTM D 5249	(1995) Backer Material for Use With Cold and Hot-Applied Joint Sealants in Portland-Cement Concrete and Asphalt Joints

CORPS OF ENGINEERS (COE)

COE CRD-C 513	(1974) Corps of Engineers Specifications for Rubber Waterstops
COE CRD-C 572	(1974) Corps of Engineers Specifications for Polyvinylchloride Waterstop

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-01 Data

Preformed Expansion Joint Filler; FIO. Sealant; FIO. Waterstops; FIO.

Manufacturer's literature, including safety data sheets, for preformed fillers and the lubricants used in their installation; field-molded sealants and primers (when required by sealant manufacturer); and waterstops.

SD-04 Drawings

Waterstops; FIO.

Shop drawings and fabrication drawings provided by the manufacturer or prepared by the Contractor.

SD-06 Instructions

Preformed Expansion Joint Filler; FIO. Sealant; FIO. Waterstops; FIO.

Manufacturer's recommended instructions for installing preformed fillers, field-molded sealants; preformed compression seals; and waterstops; and for splicing non-metallic waterstops.

SD-13 Certificates

Preformed Expansion Joint Filler; FIO. Sealant; FIO. Waterstops; FIO.

Certificates of compliance stating that the joint filler and sealant materials and waterstops conform to the requirements specified.

SD-14 Samples

Field-Molded Type; FIO.

One gallon of field-molded sealant and one quart of primer (when primer is recommended by the sealant manufacturer) identified to indicate manufacturer, type of material, quantity, and shipment or lot represented.

Non-metallic Materials; FIO.

Specimens identified to indicate manufacturer, type of material, size, quantity of material, and shipment or lot represented. Each sample shall be a piece not less than 12 inch long cut from each 200 feet of finished waterstop furnished, but not less than a total of 4 feet of each type, size, and lot furnished. One splice sample of each size and type for every 50 splices made in the factory and every 10 splices made at the job site. The splice samples shall be made using straight run pieces with the splice located at the mid-length of the sample and finished as required for the installed waterstop. The total length of each splice shall be not less than 12 inches long.

1.3 DELIVERY AND STORAGE

Material delivered and placed in storage shall be stored off the ground and protected from moisture, dirt, and other contaminants. Sealants shall be delivered in the manufacturer's original unopened containers. Sealants whose shelf life has expired shall be removed from the site.

2 PRODUCTS

2.1 PREFORMED EXPANSION JOINT FILLER

Expansion joint filler shall be preformed material. Unless otherwise indicated, filler material shall be 3/8 inch thick and of a width applicable for the joint formed. Backer material, when required, shall conform to **ASTM D 5249**.

2.1.1 Neoprene Expansion Joint Fillers

Materials: closed cell neoprene. **ASTM D 1056**, Class SC, 2 to 5 psi compression deflection, Grade SCE-41.

2.1.2 Asphalt Expansion Joint Fillers

Materials: **ASTM D 994**.

2.1.3 Fiber Expansion Joint Fillers

Materials: **ASTM D 1751**.

2.2 SEALANT

Joint sealant shall conform to the following:

2.2.1 Hot-Poured Type

ASTM D 1190 tested in accordance with **ASTM D 1191**.

2.2.2 Field Molded Type

ASTM C 920, Type M for horizontal joints or Type NS for vertical joints, Class 25, and Use NT. Bond breaker material shall be polyethylene tape, coated paper, metal foil or similar type materials. The back-up material shall be compressible, non-shrink, nonreactive with sealant, and non-absorptive material type such as extruded butyl or polychloroprene rubber.

2.3 WATERSTOPS

Intersection and change of direction waterstops shall be shop fabricated, leaving only straight butt splices for the field.

2.3.1 Non-Metallic Materials`

PVC waterstops shall be manufactured from virgin polyvinyl chloride compound not containing any scrap or reclaimed materials or pigment. The compound shall contain plasticizers, stabilizers, and other additives to meet specified requirements. Polyvinylchloride (PVC) waterstops shall conform to

COE CRD-C 572. Rubber waterstops shall conform to COE CRD-C 513.
Thermoplastic elastomeric rubber waterstops shall conform to ASTM D 471.

Materials: In expansion joints: 9 inch wide x 3/8 inch thick tear web type waterstop. 2 inch minimum horizontal movement without rupturing. Similar to Greenstreak Plastic Products Style #700. In all other joints: 6 inch wide x 3/8 inch thick bulb type. Provide hog rings or grommets at maximum 12 inch OC along the length of the waterstop.

2.3.2 Non-Metallic Hydrophilic

Swellable strip type compound of polymer modified chloroprene rubber that swells upon contact with water shall conform to ASTM D 412 as follows: Tensile strength 420 psi minimum; ultimate elongation 600 percent minimum. Hardness shall be 50 minimum on the type A durometer and the volumetric expansion ratio in distilled water at 70 degrees F shall be 3 to 1 minimum.

3 EXECUTION

3.1 JOINTS

Joints shall be installed at locations indicated and as authorized.

3.1.1 General - Construction Joints

Locate joints as indicated on Contract Drawings or as shown on approved shop drawings. Unplanned construction joints will not be allowed. If concrete cannot be completely placed between planned construction joints, then it must be removed. In general, locate joints near middle of spans of slabs, beams and girders unless a beam intersects a girder at this point, in which case, offset joint in girder a distance equal to twice the width of the beam. Locate joints in walls and columns at underside of floors, slabs, beams, or girders, and at tops of foundations or floor slabs, unless shown otherwise. At Contractor's option, beam pockets may be formed into concrete walls. Size pockets to allow beam reinforcing to be placed as detailed on Drawings. Place beams, girders, column capitals and drop panels at same time as slabs. Make joints perpendicular to main reinforcement with all reinforcement continuous across joints. Provide roughened construction joints at all construction joints unless indicated otherwise on Drawings. Clean the previously hardened concrete interface and remove all laitance. Intentionally roughen the interface to a full amplitude of 1/4 inch. Provide recessed flat surface as required to install strip type waterstops. Allow a minimum of 48 HRS before placement of adjoining concrete construction.

3.1.2 Contraction Joints

Contraction joints may be constructed by cutting the concrete with a saw after concrete has set. Joints shall be approximately 1/8 inch wide and shall extend into the slab one-fourth the slab thickness, minimum, but not less than 1 inch.

3.1.2.1 Sawed Joints

Joint sawing shall be early enough to prevent uncontrolled cracking in the slab, but late enough that this can be accomplished without appreciable spalling. Concrete sawing machines shall be adequate in number and power,

and with sufficient replacement blades to complete the sawing at the required rate. Joints shall be cut to true alignment and shall be cut in sequence of concrete placement.

3.1.2.2 Waste Disposal

The method used in disposing of wastewater employed in cutting, washing, and rinsing of concrete surfaces shall be such that the wastewater does not stain, discolor, or affect exposed surfaces of the structures, or damage the environment of the project area.

3.1.3 Expansion Joints

Do not permit reinforcement or other embedded metal items bonded to concrete (except smooth dowels bonded on only one side of joint) to extend continuously through an expansion joint. Use approved expansion joint fillers, unless noted otherwise on Drawings.

3.1.4 Joint Sealant

Sawed contraction joints and expansion joints in slabs shall be filled with joint sealant, unless otherwise shown. Joint surfaces shall be clean, dry, and free of oil or other foreign material which would adversely affect the bond between sealant and concrete. Joint sealant shall be applied as recommended by the manufacturer of the sealant.

3.2 WATERSTOPS, INSTALLATION AND SPLICES

Waterstops shall be installed at the locations shown to form a continuous water-tight diaphragm. Adequate provision shall be made to support and completely protect the waterstops during the progress of the work. Any waterstop punctured or damaged shall be repaired or replaced. Exposed waterstops shall be protected during application of form release agents to avoid being coated. Suitable guards shall be provided to protect exposed projecting edges and ends of partially embedded waterstops from damage when concrete placement has been discontinued. Splices shall be made by certified trained personnel using approved equipment and procedures.

3.2.1 Non-Metallic Hydrophillic

Install on smooth surface of hardened concrete by use of nails, adhesive or other means as recommended by manufacturer to prevent movement of waterstop during placement of concrete. Waterstop to be continuous with splices in accordance with manufacturer's instructions. Use in joints against existing concrete and where indicated on Drawings.

3.2.2 PVC Bulb type

Position waterstop accurately in forms. Secure waterstops in correct position using hog rings or grommets spaced along the length of waterstop and tie wire to adjacent reinforcing. Hold horizontal waterstops in place with continuous supports. Install according to manufacturer's instructions. Do not displace reinforcement from required location. Waterstops to be continuous. Splice ends with perpendicular butt splice using electrical splicing iron in accordance with manufacturer's instructions. Unless otherwise noted, use for all construction joints in new construction for all structures indicated on Drawings.

3.2.3 Quality Assurance

Edge welding will not be permitted. Centerbulbs shall be compressed or closed when welding to non-centerbulb type. Waterstop splicing defects which are unacceptable include, but are not limited to the following: 1) Tensile strength less than 80 percent of parent section. 2) Free lap joints. 3) Misalignment of centerbulb, ribs, and end bulbs greater than 1/16 inch. 4) Misalignment which reduces waterstop cross section more than 15 percent. 5) Bond failure at joint deeper than 1/16 inch or 15 percent of material thickness. 6) Misalignment of waterstop splice resulting in misalignment of waterstop in excess of 1/2 inch in 10 feet. 7) Visible porosity in the weld area, including pin holes. 8) Charred or burnt material. 9) Bubbles or inadequate bonding. 10) Visible signs of splice separation when cooled splice is bent by hand at a sharp angle.

3.2.4 Non-Metallic Hydrophilic Waterstop Installation

Ends to be joined shall be miter cut with sharp knife or shears. The ends shall be adhered with cyanacrylate (super glue) adhesive. When joining hydrophilic type waterstop to PVC waterstop, the hydrophilic waterstop shall be positioned as shown on the drawings. A liberal amount of a single component hydrophilic sealant shall be applied to the junction to complete the transition.

3.3 CONSTRUCTION JOINTS

Construction joints are specified in Section 03300 CAST-IN-PLACE STRUCTURAL CONCRETE except that construction joints coinciding with expansion and contraction joints shall be treated as expansion or contraction joints as applicable.

SECTION 03200

CONCRETE REINFORCEMENT
11/00

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ACI INTERNATIONAL (ACI)

ACI 318/318R (1995) Building Code Requirements for
Structural Concrete and Commentary

ACI SP-66 ACI Detailing Manual

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 53 (1999) Pipe, Steel, Black and Hot-Dipped,
Zinc-Coated, Welded and Seamless

ASTM A 82 (1997a) Steel Wire, Plain, for Concrete
Reinforcement

ASTM A 615 (1996a) Deformed and Plain Billet-Steel Bars
for Concrete Reinforcement

ASTM A 706 (1998) Low-Alloy Steel Deformed and Plain
Bars for Concrete Reinforcement

AMERICAN WELDING SOCIETY (AWS)

AWS D1.4 (1998) Structural Welding Code - Reinforcing
Steel

CONCRETE REINFORCING STEEL INSTITUTE (CRSI)

CRSI MSP-1 (1996) Manual of Standard Practice

1.2 QUALITY ASSURANCE

1.2.1 Quality Control

Independent Testing Agency: Contractor to employ and pay for services of a testing laboratory to: Review and approve Contractor proposed welding procedures and processes for conformance with AWS D1.4. Qualify welders in accord with AWS D1.4. Test three samples of each bar size and each type of weld in accord with AWS D1.4. The tensile strength of each test shall be not less than 125 percent of the required yield strength of the rebar tested.

Conduct nondestructive field tests (radiographic or magnetic particle) on not less than one random sample for each 10 welds. In addition if any welds are found defective, test five previous welds performed by same welder. Visually inspect each weld for presence of cracks, undercuts, inadequate size and other visible defects.

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Concrete Reinforcement System; FIO.

Detail drawings showing rebar number, sizes, spacing, dimensions, configurations, locations, mark numbers, lap splice lengths and locations, concrete cover and rebar supports. Sufficient rebar details to permit installation of reinforcing. Rebar details in accordance with ACI SP-66. Locations where proprietary rebar mechanical splices are required or proposed for use.

SD-06 Instructions

Adhesive Anchors; FIO

Proprietary Rebar Mechanical Splices; FIO

Manufacturer's installation instructions. Manufacturer and type of proprietary rebar mechanical splices. Manufacturer and type of rebar adhesive anchor including installation instructions and embedment depth required to achieve specified pull-out strength.

SD-08 Statements

Welding; FIO.

A list of qualified welders names.

SD-13 Certificates

Product Technical Data; FIO.

Acknowledgement that products submitted meet requirements of standards referenced. Mill certificates for all reinforcing attesting that the reinforcing steel furnished contains no less than 25 percent recycled scrap steel and meets the requirements specified herein, prior to the installation of reinforcing steel.

1.4 WELDING

Welders shall be qualified in accordance with AWS D1.4. Qualification test shall be performed at the worksite and the Contractor shall notify the Contracting Officer 24 hours prior to conducting tests. Special welding procedures and welders qualified by others may be accepted as permitted by

AWS D1.4. Welders to have been qualified during the previous 12 months prior to commencement of welding.

1.5 DELIVERY AND STORAGE

Reinforcement and accessories shall be stored off the ground on platforms, skids, or other supports.

2 PRODUCTS

2.1 DOWELS

Dowels shall conform to ASTM A 615, Grade 60, with metal end cap to allow longitudinal movement equal to joint width plus 1 inch. Steel pipe conforming to ASTM A 53, Schedule 80, may be used as dowels provided the ends are closed with metal or plastic inserts or with mortar.

2.2 REINFORCING STEEL

Reinforcing steel shall be deformed bars conforming to ASTM A 615 or ASTM A 706, grades and sizes as indicated. Cold drawn wire used for spiral reinforcement shall conform to ASTM A 82.

2.3 WIRE TIES

Wire ties shall be 16 gauge or heavier black annealed steel wire.

2.4 SUPPORTS

Bar supports for formed surfaces shall be designed and fabricated in accordance with CRSI MSP-1 and shall be steel or precast concrete blocks. Precast concrete blocks shall have wire ties and shall be not less than 4 inches square when supporting reinforcement on ground. Precast concrete block shall have compressive strength equal to that of the surrounding concrete. Where concrete formed surfaces will be exposed to weather or where surfaces are to be painted, steel supports within 1/2 inch of concrete surface shall be galvanized, plastic protected or of stainless steel. Concrete supports used in concrete exposed to view shall have the same color and texture as the finish surface. For slabs on grade, supports shall be precast concrete blocks or plastic coated steel fabricated with bearing plates.

2.5 PROPRIETARY REBAR MECHANICAL SPLICES

To develop in tension and compression a minimum of 125 percent of the yield strength of the rebars being spliced.

2.6 WELDING ELECTRODES

E90 meeting requirements of AWS D1.4.

2.7 REBAR ADHESIVE ANCHORS

Manufactured for the specific purpose of embedding and developing 125 percent of the yield strength of rebars in hardened concrete.

2.8 FABRICATION

2.8.1 Tolerances.

Tolerances: Sheared lengths: +/- 1 inch. Overall dimensions of stirrups, ties and spirals: +/- 1/2 inch. All other bends: +0 inch, -1/2 inch.

Minimum diameter of bends measured on the inside of the rebar to be as indicated in ACI 318 paragraph 7.2. Ship rebars to jobsite with attached plastic or metal tags. Place on each tag the mark number of the rebar corresponding to the mark number indicated on the shop drawing. Mark numbers on tags to be so placed that the numbers cannot be removed.

3 EXECUTION

3.1 REINFORCEMENT

Reinforcement shall be fabricated to shapes and dimensions shown and shall conform to the requirements of ACI 318. Reinforcement shall be cold bent unless otherwise authorized. Bending may be accomplished in the field or at the mill. Bars shall not be bent after embedment in concrete. Safety caps shall be placed on all exposed ends of vertical concrete reinforcement bars that pose a danger to life safety. Wire tie ends shall face away from the forms.

3.1.1 Placement

Reinforcement shall be free from loose rust and scale, dirt, oil, or other deleterious coating that could reduce bond with the concrete. Reinforcement shall be placed in accordance with ACI 318/318R at locations shown plus or minus one bar diameter (measured parallel with face of form). Reinforcement shall not be continuous through expansion joints and shall be as indicated through construction or contraction joints. Concrete coverage (measured perpendicular to face of form) shall be as indicated on drawings.

3.1.2 Splicing

Splices of reinforcement shall conform to Paragraph 12.15 of ACI 318/318R and shall be made only as required or indicated. Splicing shall be by lapping or by mechanical or welded butt connection; except that lap splices shall not be used for bars larger than No. 11 unless otherwise indicated. Obtain approval by the Engineer prior to welding reinforcement. Welding shall conform to AWS D1.4. Welded butt splices shall be full penetration butt welds. Do not tack weld reinforcing. Have each welder place an approved identifying mark near each completed weld. Lapped bars shall be placed in contact and securely tied or spaced transversely apart to permit the embedment of the entire surface of each bar in concrete. Lapped bars shall not be spaced farther apart than one-fifth the required length of lap or 6 inches. Mechanical proprietary splice connectors may only be used when approved, or indicated on the Contract Drawings. Mechanical butt splices shall be in accordance with the recommendation of the manufacturer of the mechanical splicing device. Butt splices shall develop 125 percent of the specified minimum yield tensile strength of the spliced bars or of the smaller bar in transition splices. Bars shall be flame dried before butt splicing. Adequate jigs and clamps or other devices shall be provided to support, align, and hold the longitudinal centerline of the bars to be butt spliced in a straight line. Where parallel horizontal reinforcement in

beams is indicated to be placed in two or more layers, rebars in the upper layers shall be placed directly above rebars in the bottom layer with clear distance between layers to be 6 inches. Place spacer rebars at 3 feet maximum centers to maintain the required clear distance between layers. Extend reinforcement to within 4 inches of concrete perimeter edges unless noted otherwise on contract drawings.

3.1.3 Rebar Support

Support rebars and fasten together to prevent displacement by construction loads or placing of concrete. On ground, provide supporting concrete blocks or metal bar supports with bottom plate. Over formwork, provide chairs, runners, bolsters, spacers, hangers and other rebar support.

3.1.4 Adhesive Anchors

Embed rebars into hardened concrete utilizing adhesive anchor system specifically manufactured for such installation. Drill hole in concrete with diameter and depth as required to develop 125 percent of the yield strength of the bar according to manufacturer's requirements. Place adhesive in drilled hole. Insert rebar into hole and adhesive in accordance with manufacturer's instructions.

3.1.5 Tolerances

Rebar placement: Clear distance to formed surfaces: +1/4 inch. Minimum spacing between bars: -1/4 inch. Top bars in slabs and beams: Members 8 IN deep or less: +1/4 inch. Members between 8 inch and 2 feet deep: -1/4 inch, +1/2 inch. Members more than 2 FT deep: -1/4 inch, +1 inch. Crosswise of members: Spaced evenly within +/- 1 inch. Lengthwise of members: +/- 2 inch. Minimum clear distances between rebars: Beams, walls and slabs: Distance equal to rebar diameter or 1 inch, whichever is greater. Columns: Distance equal to 1-1/2 times the rebar diameter or 1-1/2 inch, whichever is greater. Beam and slab rebars shall be threaded through the column vertical rebars without displacing the column vertical rebars and still maintaining the clear distances required for the beam and slab rebars.

3.2 DOWEL INSTALLATION

Dowels shall be installed at locations indicated and at right angles to joint being doweled. Dowels shall be accurately positioned and aligned parallel to the finished concrete surface before concrete placement. Dowels shall be rigidly supported during concrete placement. One end of dowels shall be coated with a bond breaker.

3.3 FIELD QUALITY CONTROL

3.3.1 Reinforcement Congestion and Interferences

Notify Engineer whenever the specified clearances between rebars cannot be met. Do not place any concrete until the Engineer submits a solution to rebar congestion problem. Rebars may be moved as necessary to avoid interference with other reinforcing steel, conduits, or embedded items. If rebars are moved more than one bar diameter, obtain Engineer's approval of resulting arrangement of rebars. No cutting of rebars shall be done without written approval of Engineer.

SECTION 03300

CAST-IN-PLACE STRUCTURAL CONCRETE

11/00

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ACI INTERNATIONAL (ACI)

ACI 211.1	Standard Practice for Selecting Proportions for Normal, heavyweight and Mass Concrete
ACI 212.3	Chemical Admixtures for Concrete
ACI 301	(1996) Standard Specifications for Structural Concrete
ACI 304	(1989) Measuring, Mixing, Transporting and Placing Concrete
ACI 304.2	(1991) Placing Concrete by Pumping Methods
ACI 305	(1991) Hot Weather Concreting
ACI 306	(1988) Cold Weather Concreting
ACI 309	(1997) Guide for Consolidation of Concrete
ACI 318	(1995) Building Code Requirements for Structural Concrete

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM C 31	(1991) Making and Curing Concrete Test Specimens in the Field
ASTM C 33	(1992a) Concrete Aggregates
ASTM C 39	(1994) Compressive Strength of Cylindrical Concrete Specimens
ASTM C 94	(1996) Ready-Mixed Concrete
ASTM C 136	(1995a) Sieve Analysis of Fine and Coarse Aggregates

ASTM C 138	(1981) Unit Weight, Yield, and Air Content (Gravimetric) of Concrete
ASTM C 143	(1990a) Slump of Hydraulic Cement Concrete
ASTM C 150	(1995) Portland Cement
ASTM C 171	(1995) Sheet Materials for Curing Concrete
ASTM C 173	(1978) Air Content of Freshly Mixed Concrete by the Volumetric Method
ASTM C 231	(1991b) Air Content of Freshly Mixed Concrete by the Pressure Method
ASTM C 260	(1995) Air-Entraining Admixtures for Concrete
ASTM C 289	Standard Test Method for Potential Alkali-Silica Reactivity of Aggregates (Chemical Method)
ASTM C 309	(1995) Liquid Membrane-Forming Compounds for Curing Concrete
ASTM C 494	(1992) Chemical Admixtures for Concrete
ASTM C 618	(1996a) Coal Fly Ash and Raw or Calcined Natural Pozzolan for Use as a Mineral Admixture in Portland Cement Concrete
ASTM C 685	(1995) Concrete Made by Volumetric Batching and Continuous Mixing
ASTM C 881	(1999) Epoxy-Resin-Base Bonding Systems for Concrete
ASTM C1059	(1999) Latex Agents for Bonding Fresh to Hardened Concrete
ASTM C 1064	(1986; R 1993) Temperature of Freshly Mixed Portland Cement Concrete
ASTM C 1077	(1995a) Laboratories Testing Concrete and Concrete Aggregates for Use in Construction and Criteria for Laboratory Evaluation
ASTM C 1107	(1999) Packaged Dry, Hydraulic-Cement Grout (Non shrink)
ASTM E 329	(1990) Standard Practice for Use in the Evaluation of Testing and Inspection Agencies as Used in Construction
CORPS OF ENGINEERS (COE)	
COE CRD-C 621	(1989) Specification for Non-shrink Grout

NATIONAL READY-MIXED CONCRETE ASSOCIATION (NRMCA)

NRMCA TMMB-01

(1992) Truck Mixer Agitator and Front Discharge Concrete Carrier Standards of the Truck Mixer Manufacturers Bureau

NRMCA QC 3

(1984) Quality Control Manual: Section 3, Plant Certifications Checklist: Certification of Ready Mixed Concrete Production Facilities

1.2 QUALITY ASSURANCE

1.2.1 Quality Control.

Independent Testing Agency: Contractor to employ and pay for services of a testing laboratory to: Perform materials evaluation and inspection. Design concrete mixes. Concrete testing agency to meet requirements of ASTM E329 and ASTM C1077. Do not begin concrete production until proposed concrete mix design has been approved by Engineer. Approval of concrete mix design by Engineer does not relieve Contractor of his responsibility to provide concrete that meets the requirements of this Specification. Adjust concrete mix designs when material characteristics, job conditions, weather, strength test results or other circumstances warrant. Do not use revised concrete mixes until submitted to and approved by Engineer. Perform structural calculations as required to prove that all portions of the structure in combination with remaining forming and shoring system has sufficient strength to safely support its own weight plus the loads placed thereon.

1.2.2 Qualifications

Ready mixed concrete batch plant certified by National Ready Mixed Concrete Association (NRMCA).

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-04 Drawings

Shop Drawings; FIO.

Shop drawings shall be submitted on a continuing basis during the life of the contract. The drawings shall be shown at not less than 1/4 inch equals 1 foot scale. The drawings shall show accurate concrete outlines and all types of joints. A numbering system shall be established to facilitate ready identification of each lift. The drawing shall cover in detail the design, construction, adjustment, and maintenance of the formwork and shall indicate all major design values of form materials to be used and the loading conditions on the form, including rate of concrete placement. Approval will not relieve the Contractor of responsibility of accuracy of the drawings or for the inclusion of all embedded items or other requirements specified herein. See Section 03100 for additional requirements of formwork drawings.

As-Built Drawings; FIO

The Contractor is to supply as-built drawing of all box culverts to the Contracting Officer to forward to the North Dakota Department of Transportation. As-Built drawings shall include fully updated contract drawings. These drawings shall detail reinforcement spacing, concrete geometry and reinforcement and concrete quantities.

SD-08 Statements

Concrete Mixture Design; GA.

A mix design shall be submitted for each concrete mix to be used on the project. Concrete mix design submittal to include the following information:

- a. Sieve analysis and source of fine and coarse aggregates.
- b. Test for aggregate organic impurities.
- c. Test for deleterious aggregate per ASTM C289.
- d. Proportioning of all materials.
- e. Type of cement with mill certificate for cement.
- f. Type of fly ash with certificate of conformance to specification requirements.
- g. Slump.
- h. Air content.
- i. Brand, type, ASTM designation, and quantity of each admixture proposed for use.
- j. 28-day cylinder compressive test results of trial mixes per ACI 318 and as indicated herein.
- k. Shrinkage test results.
- l. Standard deviation value for concrete production facility. Project Data. Submit evidence obtained within the last 5 years from previous quality control testing on the concrete mix.
- m. Results of fine aggregate tests required by NDDOT Specification 816.01.A.2.
- n. Results of coarse aggregate tests required by NDDOT Specifications 816.02.A.2.

All materials included in the mixture shall be of the same type and from the same source as will be used on the project. Each mix shall be accompanied by evidence by one of the following methods that demonstrates the mix will produce concrete having the characteristics and quality as specified:

- a. Project Data. Submit evidence obtained within the last 5 years from previous quality control testing on the concrete mix.
- b. Mix Design Study. Submit a mix design study complying with ACI 211.1 conducted in the past 12 months. The mix design shall be completed by a testing laboratory complying with ASTM C 1077.

Project data or mix design studies shall be obtained for the exact mix as submitted. Minor mix alterations or substitutions may be accepted if approved by the Contracting Officer. Any alternations or substitutions shall be clearly identified, and shall be accompanied by recommendations from the admixture supplier or a registered professional engineer indicating the expected effects on the concrete.

Concrete Operation Plan; GA.

The plan shall demonstrate a thorough understanding of all involved technical and logistical conditions necessary for the production of concrete that meets all requirements of these specifications. The plan shall provide as a minimum the following:

- a. Sources of cement, pozzolan, and aggregates.
- b. Location of aggregate stockpiles, batching plant, and mixing plant.
- c. Method and route for conveying batched concrete under all expected weather conditions.
- d. Method of conveying concrete within the project.
- e. Sources of electrical power and water.
- f. Provisions for replacement of required equipment in the event of breakdown.
- g. Methods for preventing aggregate stockpiles from freezing, moisture variation, or contamination.
- h. Methods of consolidation and curing. Include manufacturer's literature.
- i. Contractor quality control.

Cold Weather Plan; FIO.

If concrete is to be placed under cold weather conditions, the procedures, materials, methods, and protection proposed to accomplish it shall be submitted for review.

Hot Weather Plan; FIO.

If concrete is to be placed under hot weather conditions, the procedures, materials, methods, and protection proposed to accomplish it shall be submitted for review.

Joint Treatment Plan; FIO..

The methods and equipment proposed for joint cleanup and waste disposal shall be submitted for review.

SD-09 Reports

Concrete Testing Reports; FIO.

Per Article 3.13.

SD-13 Certificates

Manufacturer's Certificates; FIO.

The following materials shall be certified for compliance with all specification requirements. Submit manufacturer, type and product literature:

- a. Cement and pozzolan
- b. Impervious sheet curing materials
- c. Admixtures
- d. Curing compound

- e. Bonding and patching mortar
- f. Bonding agent and epoxy adhesive
- g. Non-shrink grout and cure/seal compound

Qualifications; FIO.

Written documentation for Contractor Quality Control personnel and Independent Testing Agency.

Batch Tickets; FIO

Batch tickets shall be collected and furnished to the Contracting Officer for each load of ready-mixed concrete. The batch tickets do not need to be transmitted through the submittal process. Ticket to show:

- 1) Mix identification mark.
- 2) Quantity delivered.
- 3) Amount of each material in batch.
- 4) Outdoor temperature in the shade.
- 5) Time at which cement was added.
- 6) Time of delivery.
- 7) Time of discharge.
- 8) Numerical sequence of the delivery.
- 9) Amount of water added.

1.4 QUALIFICATIONS

Contractor Quality Control personnel assigned to concrete construction shall be American Concrete Institute (ACI) Certified Workmen in grade I or higher or shall have written evidence of having completed similar qualification programs:

1.5 CONSTRUCTION TOLERANCES

Variation in alignment, grade, and dimensions of the structures from the established alignment, grade, and dimensions shown shall be within the tolerances specified in SECTION 03100 - CONCRETE FORMWORK.

1.5.1 Appearance

Finished surfaces shall be protected from stains or abrasions. Permanently exposed surfaces shall be cleaned, if stained or otherwise discolored, by an approved method that does not harm the concrete. Abrupt variations in color, shade, or tint will not be permitted on these surfaces.

1.6 STORAGE OF MATERIALS

Cement and other cementitious materials shall be stored in weathertight buildings, bins, or silos which will exclude moisture and contaminants and keep each material completely separated. Do not use cementitious materials if caked or lumpy. Aggregate stockpiles shall be arranged and used in a manner to avoid excessive segregation and to prevent contamination with other materials or with other sizes of aggregates. Aggregate shall not be stored directly on ground unless a sacrificial layer is left undisturbed. Do not use frozen or partially frozen aggregates. Allow sand to drain until moisture content is uniform prior to use. Reinforcing bars and accessories shall not be stored on cohesive soils or areas that may puddle water. Other

materials shall be stored in such a manner as to avoid contamination and deterioration. Admixtures which have been in storage at the project site for longer than 6 months or which have been subjected to freezing shall not be used unless retested and proven to meet the specified requirements. Materials shall be capable of being accurately identified after bundles or containers are opened.

1.7 GOVERNMENT ASSURANCE INSPECTION AND TESTING

The Contracting Officer may appoint a Government representative or an independent testing laboratory to inspect construction and monitor operations of the Contractor's CQC staff as considered appropriate for quality assurance. The Contractor shall provide facilities and labor as may be necessary for procurement of representative test samples. Government inspection or testing will not relieve the Contractor of any of its CQC responsibilities. Failure to detect defective work or material will not prevent rejection later when a defect is discovered nor will it obligate the Government for final acceptance.

2 PRODUCTS

2.1 GENERAL CONCRETE REQUIREMENTS

Concrete shall be ready mixed concrete conforming to ASTM C94. All concrete to be normal weight concrete. Water-cement ratio shall not exceed 0.44. Materials shall meet the requirements of the respective publications and other data specified below.

2.1.1 Strength Requirements

The design compressive strength (f'_c) shall not be less than 4,000 pounds per square inch. The strength of the concrete will be considered satisfactory so long as the average of all sets of three consecutive test results equals or exceeds the specified compressive strength f'_c and no individual test result falls below the specified strength f'_c by more than 500 psi. A "test" is defined as the average of two companion cylinders, or if only one cylinder is tested, the results of the single cylinder test. Design compressive strength (f'_c) shall be evaluated for acceptance at 28 days unless pozzolan is used, in which case the design strength shall be met in 90 calendar days, provided the 90-day period does not extend past the contract expiration date. Members identified with concrete not meeting the criteria shall be replaced. The Contractor may conduct additional testing to verify strength or further define the limits of inferior concrete if approved by the Contracting Officer.

2.1.2 Slump

Slump of the concrete, as delivered to the point of placement into the forms, shall not exceed 3 inches and, shall not be less than 1 inch. Slump is measured at point of discharge of the concrete into the concrete construction member. If a superplastizer is used, the slump shall not exceed 3 inches before the admixture is added and shall not exceed 8 inches at the point of delivery after the admixture is added. Concrete of lower than minimum slump may be used provided it can be properly placed and consolidated. Pumped concrete: Provide additional water at batch plant to allow for slump loss due to pumping. Provide only enough additional water

so that slump of concrete at discharge end of pump hose does not exceed maximum slump specified above. Determine slump per ASTM C143.

2.1.3 Admixtures

Concrete shall not contain admixtures that provide special properties to the concrete unless specified or approved. Admixtures to be used on the project shall be included in the mix design submittals. Accelerating admixtures shall be used only during cold weather and when approved in writing.

2.1.3.1 Air Entrainment

All concrete shall be air entrained to contain between 5 and 8 percent total air. Air content to be measured in accordance with ASTM C231, ASTM C173, or ASTM C138.

2.1.4 Gradation of Aggregates

Nominal maximum size coarse aggregate shall be 1-1/2 inches, except 3/4 inch nominal maximum size coarse aggregate shall be used when any of the following conditions exist: the narrowest dimension between sides of forms is less than 7-1/2 inches, the depth of the slab is less than 4-1/2 inches, or the minimum cover or clear spacing between reinforcing is less than 2 inches. Gradation of coarse aggregate shall conform to NDDOT Specification 816.02.A.1, size 3 and 5 for 1-1/2 inch and 3/4 inch maximum aggregate, respectively. Gradation of fine aggregate shall conform to NDDOT Specification 816.01.A.1.

2.2 CEMENTITIOUS MATERIALS

Cementitious materials shall be portland cement, or portland cement in combination with pozzolan. Minimum cement content shall be 611 pounds per cubic yard. Optional pozzolan replacement of cement shall be limited to 20 percent of the total cementitious material of a mix by weight for 15% of the cement content. Cementitious materials shall conform to appropriate specifications listed below. Use of cementitious materials in concrete which will have surfaces exposed in the completed structure shall be restricted so there is no change in color, source, or type of cementitious material.

2.2.1 Portland Cement

ASTM C 150, Type I with a maximum 15 percent amount of tricalcium aluminate, or Type II.

2.2.2 Pozzolan (Fly Ash)

ASTM C 618, Class C or F with the optional requirements for multiple factor, drying shrinkage, and uniformity from Table 2A of **ASTM C 618**. Requirement for maximum alkalies from Table 1A of **ASTM C 618** shall apply. Nonstaining. Hardened concrete containing fly ash to be uniform light gray color. Maximum loss on ignition: 4 percent. Compatible with other concrete ingredients. Additional requirements of NDDOT Specification 820.01 shall apply to all fly ash furnished for work.

2.3 AGGREGATES

2.3.1 Composition

Fine aggregate shall consist of clean natural sand. Coarse aggregate shall consist of natural gravel, crushed rock, or other inert granular material. Maximum amount of clay or shale particles: 1 percent.

2.3.2 Quality

The aggregate particles shall be clean, hard, unweathered, and uncoated. The shape of the particles shall be generally cubical or spherical. Where required, fines shall be removed from the aggregates by adequate washing. The aggregates as delivered to the mixer shall meet the quality requirements of ASTM C 33, Table 3 for the appropriate type or location of concrete construction for use in a severe climate.

2.3.3 Sources

Unless approved otherwise, aggregates shall be produced from the sources listed in SECTION 00830 - ATTACHMENTS. If the Contractor proposes to furnish aggregates from a source not listed, the Government will make such tests and other investigations as necessary to determine whether or not aggregates meeting the requirements of this project can be produced from the proposed source. The tests to which the aggregate will be subjected may include specific gravity, absorption, Los Angeles abrasion, soundness in magnesium sulfate, petrographic analysis, freezing and thawing in concrete, alkali-aggregate reaction, organic impurities, deleterious materials, and other tests necessary to determine that concrete of acceptable quality and cost can be produced from the materials proposed. These tests will be conducted in accordance with the applicable Corps of Engineers methods of testing given in the Handbook for Concrete and Cement. When the Contractor desires to use aggregates from a source not listed, suitable samples for quality evaluation consisting of not less than 700 pounds of each size of coarse aggregate and 300 pounds of fine aggregates shall be taken in accordance with ASTM D 75 and delivered to the Contracting Officer or to a laboratory as directed. Sampling and shipping of samples shall be at the Contractor's expense. A maximum of 120 calendar days will be required to complete evaluation of the aggregate.

2.4 CHEMICAL ADMIXTURES

Chemical admixtures, when required or permitted, shall conform to the appropriate specification listed.

- a. Air-Entraining Admixture. **ASTM C 260** and shall consistently entrain the air content in the specified ranges under field conditions.
- b. Accelerating Admixture. **ASTM C 494**, Type C or E, except that calcium chloride or admixtures containing calcium chloride shall not be used.
- c. Water-Reducing or Retarding Admixture. **ASTM C 494**, Type A, B, or D. A retarder shall be required under certain conditions as specified in NDDOT Specification 802.01.C.5.
- d. High-Range Water Reducer. **ASTM C 494**, Type F or G.

e. Do not use retarding or accelerating admixtures unless specifically approved in writing by Engineer and at no cost to Owner.

2.5 CURING MATERIALS

2.5.1 Impervious-Sheet

Impervious-sheet materials shall conform to [ASTM C 171](#), type optional, except that polyethylene sheet shall be white opaque.

2.5.2 Membrane-Forming Compound

Membrane-Forming curing compound shall conform to [ASTM C 309](#), Type 1-D or 2, except that only a styrene acrylate or chlorinated rubber compound meeting Class B requirements shall be used for surfaces that are to be painted or are to receive bituminous roofing, or waterproofing, or floors that are to receive adhesive applications of resilient flooring. The curing compound selected shall be compatible with any subsequent paint, roofing, waterproofing, or flooring specified. Nonpigmented compound shall contain a fugitive dye, and shall have the reflective requirements in [ASTM C 309](#) waived. Membrane-forming curing compound shall not be used on surfaces that are to be treated with floor hardener.

2.6 WATER

Water for mixing and curing shall be fresh, clean, potable, and free of oil, acid, salt, or alkali. Water for curing shall not contain any substance that stains the concrete. River water shall not be used.

2.7 GROUT

2.7.1 Nonshrink Grout:

Nonmetallic, noncorrosive, nonstaining, premixed with only water to be added. Grout to produce a positive but controlled expansion. Mass expansion not to be created by gas liberation. Minimum compressive strength of nonshrink grout at 28 days: 6500 psi.

2.7.2 Epoxy Grout:

3-component epoxy resin system: Two liquid epoxy components and one inert aggregate filler component. Each component packaged separately for mixing at jobsite.

2.8 BONDING AGENT

ASTM C1059, Type II.

2.9 BONDING GROUT

One part cement to one part aggregate. Mix cement and aggregate. Mix bonding agent and water together in separate container in accordance with manufacturer's instructions. Add bonding agent/water mixture to cement/aggregate mixture. Mix to consistency of thick cream. Bonding agent itself may be used as bonding grout if approved by manufacturer and Engineer.

2.10 PATCHING MORTAR

One part cement to two and one-half parts aggregate by damp loose volume. Substitute white Portland cement for a part of gray Portland cement to produce color matching surrounding concrete. Mix cement and aggregate. Mix bonding agent and water together in separate container in accordance with manufacturer's instructions. Add only enough bonding agent/water mixture to cement/aggregate mixture to allow handling and placing. Let stand with frequent manipulation with a trowel, until mix has reached stiffest consistency to allow placement.

2.11 EPOXY ADHESIVE

ASTM C881, Type V.

3 EXECUTION

3.1 CONCRETE FINISH SCHEDULE

a. Broomed Finish. A broomed finish shall be applied to the following surfaces: walks, exterior stairs, surfaces to receive terrazzo, treads of concrete pan stairs, and exterior slab closure. Exterior surfaces shall be sloped for drainage, unless otherwise shown.

b. Float Finish. Surfaces to be float-finished shall include the top of the structural slab where insulation is to be applied and all remaining surfaces not specified elsewhere. The finished surface shall be a true plane within 5/16 inch in 10 feet.

c. Trowel Finish. A steel trowel finish shall be applied to all floor surfaces, unless otherwise specified or indicated.

d. Forms. Surfaces, unless another type of finish is specified, shall be left with the texture imparted by the forms, except defective surfaces shall be repaired as described below. Forms shall not be reused if there is any evidence of surface wear or defects that would impair the quality of the surface.

e. Horizontal Concrete Repairs. Concrete shall be screeded, floated, and lightly troweled to a finish approved by the Contracting Officer. The finished surface shall be a true plane within 5/16 inch in 10 feet.

3.2 PREPARATION FOR PLACING

Surfaces to receive concrete shall be clean, damp and free from frost, ice, mud, loose particles, foreign matter, and water. Forms shall be in place, cleaned, coated, and adequately supported. Reinforcing steel shall be in place, cleaned, tied, and adequately supported. Transporting and conveying equipment shall be in-place, ready for use, clean, and free of hardened concrete and foreign material. Equipment for consolidating concrete shall be at the placing site and in proper working order. Equipment and material for curing and for protecting concrete from weather or mechanical damage shall be at the placing site, in proper working condition and in sufficient amount for the entire placement. Concrete shall not be placed before the completion of all adjacent pile driving or other operations that might prove detrimental to freshly placed concrete.

3.2.1 Soil Subgrades

Immediately prior to setting forms and reinforcement, the foundation shall be compacted with a manual tamper.

3.2.2 Embedded Items

Before placement of concrete, care shall be taken to determine that all embedded items are firmly and securely fastened in place as indicated on the drawings, or required. Conduit and other embedded items shall be clean and free of oil and other foreign matter such as loose coatings or rust, paint, and scale. The embedding of wood in concrete will be permitted only when specifically authorized or directed. Voids in sleeves, inserts, and anchor slots shall be filled temporarily with readily removable materials to prevent the entry of concrete into voids.

3.3 CONCRETE PRODUCTION

Concrete shall be furnished from a ready-mixed concrete plant, except that small batches for pours less than 2 cubic yards may be batched on-site. Ready-mixed concrete shall be batched, mixed, and transported in accordance with [ASTM C 94](#). Truck mixers, agitators, and nonagitating transporting units shall comply with [NRMCA TMMB-01](#). Ready-mix plant equipment and facilities shall be certified in accordance with [NRMCA QC 3](#). Aluminum pipes, chutes, troughs, spouts, or tremies shall not be used for pumping, conveying, or placing concrete.

3.3.1 Concrete Mixers

The mixers shall not be charged in excess of the capacity recommended by the manufacturer. Truck mixers, the mixing of concrete therein, and concrete uniformity shall conform to the requirements of [ASTM C 94](#). Each truck shall be equipped with two counters from which it is possible to determine the number of revolutions at mixing speed and the number of revolutions at agitating speed.

3.3.2 Site Mixed Concrete

If the Contractor elects to provide an on site batching and mixing plant, a batch type plant shall be provided of sufficient capacity to prevent cold joints. Site-mixed concrete shall be produced in conformance with [ACI 301](#), or by volumetric batching and continuous mixing in conformance with [ASTM C 685](#).

3.4 TRANSPORTING CONCRETE TO PROJECT SITE

Concrete shall be transported to the placing site in truck mixers.

3.5 CONVEYING CONCRETE ON SITE

Concrete shall be conveyed from mixer to forms by methods that will prevent segregation or loss of ingredients. Any concrete transferred from one conveying device to another shall be passed through a hopper, which is conical in shape, and shall not be dropped vertically more than 5 feet, except where suitable equipment is provided to prevent segregation and where specifically authorized. Trucks shall be equipped with radios or phones to

permit communication between the mixing plant and the concrete placement site.

3.5.1 Concrete Pumps

The pipeline shall be rigid steel pipe or heavy-duty flexible hose. The inside diameter of the pipe shall be at least three times the nominal maximum size coarse aggregate in the concrete mixture to be pumped, but not less than 5 inches. The maximum size coarse aggregate will not be reduced to accommodate the pumps. The distance to be pumped shall not exceed limits recommended by the pump manufacturer. The concrete shall be supplied to the concrete pump continuously. When pumping is completed, concrete remaining in the pipeline shall be ejected without contamination of concrete in place. After each operation, equipment shall be thoroughly cleaned, and flushing water shall be wasted outside of the forms and in compliance with the approved environment protection plan.

3.6 PLACING CONCRETE

Place concrete in compliance with ACI 304 and 304.2. Mixed concrete shall be discharged within 1 hour or before the mixer drum has revolved 300 revolutions, whichever comes first after the introduction of the mixing water to the cement and aggregates. Follow additional requirements of NDDOT Specification 802.04.D.3. When the length of haul makes it impossible to deliver truck-mixed concrete within this time limit, batching of cement and a portion of the mixing water shall be delayed until the truck mixer is at or near the construction site. Concrete shall be placed within 15 minutes after it has been discharged from the transporting unit. Sufficient placing capacity shall be provided so that concrete can be kept free of cold joints. Do not allow concrete to freefall more than 4 feet.

3.6.1 Depositing Concrete

Concrete shall be deposited as close as possible to its final position in the forms, and there shall be no vertical drop greater than 5 feet except where suitable equipment is provided to prevent segregation and where specifically authorized. Depositing of the concrete shall be so regulated that it will be effectively consolidated in horizontal layers not more than 18 inches thick, except that all slabs shall be placed in a single layer. Concrete to receive other construction shall be screeded to the proper level. Concrete shall be deposited continuously so that fresh concrete is deposited on in-place concrete that is still plastic.

3.6.2 Consolidation

Consolidation of concrete shall conform to ACI 309, except as otherwise specified. Immediately after placing, each layer of concrete shall be consolidated by internal vibrators. The vibrators shall at all times be adequate in effectiveness and number to properly consolidate the concrete. A spare vibrator shall be kept at the jobsite during all concrete placing operations. Vibrators shall be inserted vertically at uniform spacing over the area of placement. The distance between insertions shall be approximately 1-1/2 times the radius of action of the vibrator so that the area being vibrated will overlap the adjacent just-vibrated area by a reasonable amount. The vibrator shall penetrate rapidly to the bottom of the layer and at least 6 inches into the preceding layer if there is such. Vibrator shall be held stationary until the concrete is consolidated and

then vertically withdrawn slowly while operating. Form vibrators shall not be used unless specifically approved and unless forms are constructed to withstand their use. Vibrators shall not be used to move concrete within the forms. Excessive vibration of concrete resulting in segregation shall be prevented.

3.6.3 Cold Weather Requirements

Concrete shall not be placed without a procedure approved in accordance with paragraph: SUBMITTALS when the concrete is likely to be subjected to freezing temperatures before the expiration of the curing period. Heating of the mixing water or aggregates will be required to regulate the concrete-placing temperatures. The placing temperature of the concrete shall be as recommended in ACI 306, Table 3.1, with the temperature of the concrete measured in accordance with ASTM C 1064. Do not place heated concrete that is warmer than 80 degrees F. Air and form temperature in contact with concrete shall be above 50 degrees F prior to placing concrete and maintained for the first 3 days, and at a temperature above 32 degrees F for the remainder of the specified curing period. Do not place concrete on frozen ground. Thermometers shall be installed at such locations as may be directed. Suitable thermometers shall be furnished by the Contractor and installed adjacent to the concrete surface and 2 inches inside the surface of the concrete. During the period of protection removal, heat shall be shut down and insulation or tents shall be removed in a systematic schedule such that the temperature differential between the air and concrete surface does not exceed 25 degrees F. Exhaust fumes from combustion heating units shall be vented to the outside of the enclosure, and heaters and ducts shall be placed and directed so as not to cause areas of overheating and drying of concrete surfaces or to create fire hazards. Materials entering the mixer shall be free from ice, snow, or frozen lumps.

3.6.4 Hot Weather Requirements

Concrete shall be properly placed and finished with approved procedures in accordance with paragraph: SUBMITTALS. When hot, windy conditions during concreting appear probable, equipment and material shall be at the placing site to provide windbreaks, shading, fogging, or other action to prevent plastic shrinkage cracking or other damaging drying of the concrete. The concrete-placing temperature shall not exceed 85 degrees F (60 degrees F for concrete for horizontal repairs). Cooling of the mixing water or aggregates or placing concrete in the cooler part of the day may be required to obtain an adequate placing temperature. Steel forms and reinforcements shall be cooled prior to concrete placement when steel temperatures are greater than 120 degrees F. Conveying and placing equipment shall be cooled if necessary to maintain proper concrete-placing temperature. When the rate of evaporation of surface moisture, as determined by use of Figure 2.1.5 of ACI 305, may reasonably be expected to exceed 0.2 pounds per square feet per hour, provision for windbreaks, shading, fog spraying, or wet covering with a light-colored material shall be made in advance of placement, and such protective measures shall be taken as quickly as finishing operations will allow.

3.7 JOINTS

All joints not shown on the drawings are subject to approval by the Contracting Officer. Joints shall be perpendicular to the main

reinforcement. Place waterstops per SECTION 03150: EXPANSION JOINTS, CONTRACTION JOINTS, AND WATERSTOPS.

3.7.1 Construction Joints

Concrete shall be placed continuously so that structural members are monolithic in construction. Construction joints shall be located and constructed as indicated or approved. Where concrete work is interrupted by weather, end of work shift or other similar type of delay, location and type of construction joint shall be subject to approval of the Contracting Officer. Fresh concrete shall not be placed against adjacent hardened concrete until it is at least 48 hours old.

3.7.1.1 Preparation for Construction Joints

Concrete surfaces to which other concrete is to be bonded shall be abraded in an approved manner that will expose sound aggregate uniformly without damaging the concrete. Surfaces shall be thoroughly washed and shall be damp but without free water when concrete is placed or joint shall be coated with epoxy adhesive or cement grout. The concrete surface shall be free of all accumulated laitance, coatings, stains, debris, loose material, and other foreign matter. Laitance shall be removed when the concrete is sufficiently hard so that only the surface skin or mortar is removed and there is no undercutting of coarse aggregate particles. The surface shall be cleaned as the last operation prior to closing forms and obstructing the area with reinforcement.

3.7.2 Expansion and Contraction (Control) Joints

See SECTION 03150: EXPANSION JOINTS, CONTRACTION JOINTS, AND WATERSTOPS

3.8 REPAIR OF SURFACE DEFECTS

3.8.1 Preparation for Surface Repairs

Preparation for surface repairs shall follow the requirements for preparation for construction joints, with the following additional criteria: The surface preparation shall include air-water cutting, sandblasting, high-pressure water jet, or other approved method. The surface shall be cleaned as the last operation prior to placing concrete or obstructing the area with reinforcement. The surface shall be watered for 12 hours prior to placing concrete. Horizontal surfaces shall be air blasted to remove puddled water.

3.8.2 Repairing Surface Defects

Repair shall follow procedure of "Finishing Formed Surfaces" below.

3.9 FINISHING FORMED SURFACES

Beginning no more than 24 hours after form removal,, all fins and loose materials shall be removed. All voids and honeycombs exceeding 1/2 inch in diameter and all tie rod holes shall be reamed or chipped and filled with patching mortar. Voids and honeycomb shall be dampened, brush-coated with a neat cement grout or with an approved bonding agent, and filled with patching mortar. Allow bonding grout to set for period of time required by bonding agent manufacturer before applying premixed patching mortar. Mortar shall be thoroughly compacted in place and struck off to adjacent concrete,

or mortar during remedial work, including curing, shall be above 50 F. The patched areas shall be cured for seven days. defective areas larger than 36 square inches in any surface shall be replaced or corrected as directed by the Contracting Officer.

3.10 FINISHING UNFORMED SURFACES

The finish of all unformed surfaces shall meet the requirements of paragraph Tolerances in PART 1, when tested as specified herein.

3.10.1 General

Unformed surfaces that are not to be covered by additional concrete or backfill shall have a float finish, with additional finishing as specified below, and shall be true to the elevation shown on the drawings. Unless otherwise shown on the drawings, exterior surfaces shall be sloped for drainage, as directed. Joints shall be carefully made with a jointing or edging tool. The dusting of surfaces with dry cement or other materials or the addition of any water during finishing shall not be permitted. If bleedwater is present prior to finishing, the excess water shall be carefully dragged off or removed by absorption with porous materials such as burlap. Slabs with surfaces which exhibit significant crazing shall be removed and replaced.

3.10.2 Rough Slab Finish

As a first finishing operation for unformed surfaces and as final finish for slabs to receive mortar setting beds, the surface shall receive a rough slab finish. The concrete shall be screeded with straightedge strikeoffs immediately after consolidation to bring the surface to the required finish level with no coarse aggregate visible. Side forms and screed rails shall be provided, rigidly supported, and set to exact line and grade.

3.10.3 Floated Finish

Screeding shall be followed immediately by darbying or bull floating before bleeding water is present, to bring the surface to a true, even plane. After the concrete has stiffened it shall be floated to a true and even plane free of ridges. Floating shall be performed by use of suitable hand floats or power driven equipment.

3.10.4 Troweled Finish

The finished surface shall be thoroughly consolidated and shall be steel-troweled to a smooth, even, dense finish, free from blemishes including trowel marks and be uniform in texture and appearance. A final hard steel troweling shall be done by hand, with the trowel tipped, and using hard pressure, when the surface is at a point that the trowel will produce a ringing sound. Tolerance shall be true planes within 5/16 inch in 10 feet as determined by a 10 foot straightedge placed anywhere on the slab in any direction.

3.10.5 Broomed Finish

After floating, the surface shall be lightly steel troweled, and then carefully scored by pulling a coarse fiber push-type broom across the surface. Brooming shall be transverse to traffic or at right angles to the

slope of the slab. After the end of the curing period, the surface shall be vigorously broomed with a coarse fiber broom to remove all loose or semi-detached particles.

3.11 CURING AND PROTECTION

Concrete shall be cured by an approved method for a period of 7 days, except that cement blended with pozzolan shall be cured for 14 days.

3.11.1 General

Immediately after placement, concrete shall be protected from premature drying, extremes in temperatures, rapid temperature change, mechanical injury and damage from rain and flowing water. Materials and equipment needed for adequate curing and protection shall be available and at the site prior to placing concrete. No fire or excessive heat, including welding, shall be permitted near or in direct contact with the concrete at any time. In cold weather, follow curing procedures in Cold Weather Plan. In hot weather, follow curing in Hot Weather Plan

3.11.2 Moist Curing

Concrete to be moist-cured shall be maintained continuously wet for the entire curing period, commencing immediately after finishing. When wooden forms are left in place during curing, they shall be kept wet at all times. Surfaces shall be cured by ponding, by continuous sprinkling, by continuously saturated burlap or cotton mats, or by continuously saturated plastic coated burlap. Burlap and mats shall be clean and free from any contamination and shall be completely saturated before being placed on the concrete. The Contractor shall have an approved work system to ensure that moist curing is continuous 24 hours per day. If inspection identifies an area of inadequate curing, immediate corrective action shall be taken, and the required curing period for those areas shall be extended by 1 day.

3.11.3 Membrane forming Curing Compounds

Membrane curing will not be permitted on any surface to which sack-rubbed finish or smooth finish is to be applied. Membrane curing shall not be used on surfaces containing protruding steel reinforcement, or surfaces that are to receive any subsequent treatment depending on adhesion or bonding to the concrete, such as additional concrete, hardeners, sealers, terrazzo, or abrasive aggregate finish. Clear or translucent membrane-forming compound with fugitive dye shall be used on all surfaces permanently exposed to view, and white pigmented compound may be used on all other surfaces. A styrene acrylate or chlorinated rubber compound meeting [ASTM C 309](#), Class B requirements, may be used for surfaces which are to be painted or are to receive bituminous roofing or waterproofing, or floors that are to receive adhesive applications of resilient flooring. The curing compound selected shall be compatible with any subsequent paint, roofing, waterproofing or flooring. Membrane curing compound shall not be used on surfaces that are maintained at curing temperatures with free steam.

Curing compound shall be applied to formed surfaces immediately after the forms are removed and prior to any patching or other surface treatment except the cleaning of loose sand, mortar, and debris from the surface. All surfaces shall be thoroughly moistened with water. Curing compound shall be

applied to slab surfaces as soon as the bleeding water has disappeared, with the tops of joints being temporarily sealed to prevent entry of the compound and to prevent moisture loss during the curing period. The curing compound shall be applied in a two-coat continuous operation by approved motorized power-spraying equipment operating at a minimum pressure of 75 psi, at a uniform coverage of not more than 400 square feet per gallon for each coat, and the second coat shall be applied perpendicular to the first coat. Allow preceding coat to completely dry prior to applying the next coat. Concrete surfaces which have been subjected to rainfall within 3 hours after curing compound has been applied shall be resprayed by the method and at the coverage specified. Surfaces on which clear compound is used shall be shaded from direct rays of the sun for the first 3 days. Surfaces coated with curing compound shall be kept free of foot and vehicular traffic, and from other sources of abrasion and contamination during the curing period.

Appearance is a primary consideration for exterior concrete surfaces exposed to view. The Contractor shall exercise extreme care to apply curing compound evenly on these surfaces. Variations in shade, color, or tint, resulting from uneven application of curing compound, shall be repaired by and at the expense of the Contractor as directed.

3.11.4 Impervious Sheeting

Surfaces shall be thoroughly wetted and be completely covered with sheeting. Sheeting shall be at least 18 inches wider than the concrete surface to be covered. Covering shall be laid with light-colored side up. Covering shall be lapped not less than 12 inches and securely weighted down or shall be lapped not less than 4 inches and taped to form a continuous cover with completely closed joints. The sheet shall be weighted to prevent displacement so that it remains in contact with the concrete during the specified length of curing. Coverings shall be folded down over exposed edges of slabs and secured by approved means. If inspection identifies tears, holes, laps or joints that are not completely closed, the tears and holes shall immediately be repaired or the sheets replaced, the joints closed, and the required curing period for those areas shall be extended by 1 day.

3.11.5 Ponding or Immersion

Water shall not be more than 20 degrees F less than the temperature of the concrete.

3.12 GROUT

3.12.1 Grout Schedule of Use

- a. Nonshrink grout: Filling form tie holes, under column and beam base plates, other uses indicated on the Drawings.
- b. Epoxy grout: Patching cavities in concrete, grouting of dowels and anchor bolts into existing concrete, other uses indicated on the Drawings.

3.12.2 Grout Installation

- a. Nonshrink grout: Clean concrete surface to receive grout. Saturate concrete with water for 24 HRS prior to grouting. Mix in a

mechanical mixer. Use no more water than necessary to produce flowable grout. Place in accordance with manufacturer's instructions. Provide under beam, column, and equipment base plates, and in other locations indicated on the Drawings. Completely fill all spaces and cavities below the top of base plates. Provide forms where base plates and bed plates do not confine grout. Where exposed to view, finish grout edges smooth. Except where a slope is indicated on the Drawings, finish edges flush at the base plate, bed plate, member or piece of equipment. Coat exposed edges of grout with cure or seal compound recommended by the grout manufacturer.

b. Epoxy grout: Mix and place in accordance with manufacturer's instructions. Apply only to clean, dry, sound surface. Completely fill all cavities and spaces around dowels and anchors without voids. Grout base and bed plates as specified for nonshrink grout. Obtain manufacturer's field technical assistance as required to assure proper placement.

3.13 TESTING AND INSPECTION FOR CONTRACTOR QUALITY CONTROL

The Contractor's Independent Testing Agency shall perform the inspection and tests described below and, based upon the results of these inspections and tests, shall take the action required and shall submit specified reports. When, in the opinion of the Contracting Officer, the concreting operation is out of control, concrete placement shall cease and the operation shall be corrected. If the Government conducts quality assurance testing, the Contractor shall assist in collection of samples as directed. All necessary platforms, tools, and equipment for obtaining samples shall be furnished by the Contractor. In addition to this Section, follow requirements of the North Dakota Department of Transportation "Field Sampling and Testing Manual". See also NDDOT Specification 802.01.F.1.

3.13.1 Gradation

3.13.1.1 Fine Aggregate

At least once during each shift when the concrete plant is operating, there shall be one sieve analysis in accordance with [ASTM C 136](#).

3.13.1.2 Coarse Aggregate

At least once during each shift in which the concrete plant is operating, there shall be a sieve analysis in accordance with [ASTM C 136](#) for each size of coarse aggregate.

3.13.2 Concrete Mixture

a. Air Content Testing. Air content tests shall be measured when compressive strength specimens are fabricated. Specified air content shall be attained at point of placement into the forms. Measurement shall be in accordance with [ASTM C 231](#).

c. Slump Testing. The concrete slump shall be measured when compressive strength specimens are fabricated. Measurement shall be in accordance with [ASTM C 143](#). The slump shall be reported along with the compressive strength data.

e. Temperature. The temperature of the concrete shall be measured when compressive strength specimens are fabricated. Measurement shall be in accordance with **ASTM C 1064**. The temperature shall be reported along with the compressive strength data.

f. Strength Specimens. Test cylinders shall be cast for compressive strength tests for each mix design at the following rates:

- a. not less than once each day when pour exceeds 8 cubic yards.
- b. not less than once for each 125 cubic yards of concrete.
- c. the number of test cylinders need not exceed 3 sets per day for each mix.

A set of test specimens shall consist of four cylinders, one to be tested at 7 days and two at 28 days. If either of the 28 day breaks does not meet the specified strength, the fourth cylinder shall be tested at 90 days, otherwise it shall be discarded. Test specimens shall be molded and cured in accordance with **ASTM C 31** and tested in accordance with **ASTM C 39**. Results of all strength tests shall be reported immediately to the Contracting Officer.

3.13.3 Inspection Before Placing

Foundations, construction joints, forms, and embedded items shall be inspected by the Contractor in sufficient time prior to each concrete placement in order to certify to the Contracting Officer that they are ready to receive concrete. Full cooperation shall be given other trades to install embedded items. Suitable templates or instructions shall be used for setting items not placed in the forms.

3.13.4 Cold-Weather Protection

At least once each shift and once per day on non-work days, an inspection shall be made of all areas subject to cold-weather protection. Any deficiencies shall be noted, corrected, and reported.

3.13.5 Reports

The results of all tests and inspections conducted at the project site, as well as corrective actions taken, shall be reported in writing weekly and shall be delivered to the quality assurance representative within three days after the end of each weekly reporting period. The Contracting Officer has the right to examine all Contractor quality control records.

SECTION 03500

SPECIAL CULVERT DESIGN

01/01

1 GENERAL

1.1 GENERAL

This specification section is to provide guidance in the design of the special culverts on the English Coulee Diversion Channel project. For construction of these culverts refer to the following Sections:

SECTION 03100: STRUCTURAL CONCRETE FORMWORK

SECTION 03150: EXPANSION JOINTS, CONTRACTION JOINTS, AND WATERSTOPS

SECTION 03200: CONCRETE REINFORCEMENT

SECTION 03300: CAST-IN-PLACE STRUCTURAL CONCRETE

1.1.1 Definitions

Special culverts shall be those culverts that the Contractor is fully responsible for structural design, detailing, reinforcement and concrete quantities, shop drawing production and submittals, and construction.

1.2 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN ASSOCIATION OF STATE HIGHWAY AND TRANSPORTATION OFFICIALS
(AASHTO)

AASHTO Standard Specification for Highway Bridges -
(16th Edition)

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-01 Data

Design Calculations; GA.

The Contractor shall submit design analysis and calculations for the special culverts to the Contracting Officer for review and approval by Corps of Engineers. The Contracting Officer will forward the design calculations to the North Dakota Department of Transportation.

SD-04 Drawings

Shop Drawings; GA

The Contractor shall submit shop drawings similar to the drawings within the plan set for non-special culverts. These shop drawings shall include specifics on bar sizes, spacing, locations, bends, and concrete and reinforcement quantities and must adhere to the location specific bar mark numbering system set fourth by the North Dakota Department of Transportation. The Contracting Officer will forward the shop drawings to the North Dakota Department of Transportation.

As-Built Drawings; FIO

Refer to SECTION 03300: CAST-IN-PLACE STRUCTURAL CONCRETE

1.4 QUALIFICATIONS

All calculations and submitted drawings shall be signed by a Professional Engineer registered in the State of North Dakota.

2 PRODUCTS

2.1 NORTH DAKOTA DEPARTMENT OF TRANSPORTATION CULVERT DESIGN PROGRAM

The culvert design program can be obtained from Larry Schwartz of the North Dakota Department of Transportation, telephone number 701-328-4446. This program is used to aid in the design of the special culvert.

3 EXECUTION

3.1 DESIGN

The concrete geometry of each cast-in-place special culvert has been given in the plan set. This ensures a similar appearance to all culverts on the English Coulee Diversion Channel project. It is the Contractors responsibility that the design of the special culverts meet or exceed the AASHTO design specifications for flexural and shear design as well as for crack control requirements set fourth in Section 17.6.4.7, Crack Control, of the above referenced specifications. The Contractor shall produce calculations for the barrel of the culvert, showing the determination of critical moments and shears either by hand calculation or by a finite element modeling using the HS25 live loading condition. These calculations shall include reinforcement size and spacing requirement to meet the above design specification and shall be submitted for approval to the Contracting Officer. The North Dakota, Department of Transportation culvert design program and its output should not be used for determination of critical moments or shears, nor for required bar size or spacing, nor for concrete and steel quantities. It should be used to assist the Contractor in locating callouts for the location specific bar mark numbering system. Also, its output for the wingwall geometry and wingwall reinforcement size and spacing should be followed. In addition, the construction notes and details with minor corrections provided by the DOT should be used.

SECTION 05055

METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS
01/01

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

ALUMINUM ASSOCIATION (AA)

AA SAS-30 (1986) Aluminum Structures Construction Manual Series - Section 1 Specifications for Aluminum Structures

AMERICAN NATIONAL STANDARDS INSTITUTE (ANSI)

ANSI A14.3 (1992) Ladders-Fixed-Safety Requirements

ANSI MBG 531 (1993) Metal Bar Grating Manual

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A6 (1999) General Requirements for Rolled Steel Plates, Shapes, Sheet Piling, and Bars for Structural Use

ASTM A36 (1997) Carbon Structural Steel

ASTM A123 (1989a) Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

ASTM A307 (1997) Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength

ASTM A325 (1994) Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength

ASTM A380 (1994a) Cleaning and Descaling Stainless Steel Parts, Equipment, and Systems

ASTM A490	(1993) Heat-Treated Steel Structural Bolts, 150 ksi Minimum Tensile Strength
ASTM B221	(1996) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes and Tubes
ASTM B429	(1995) Aluminum-Alloy Extruded Structural Pipe and Tube
ASTM A780	(1993a) Repair of Damaged and Uncoated Areas of Hot-Dip Galvanized Coatings
ASTM D962	(1981; R 1994) Aluminum Powder and Paste Pigments for Paints
ASTM E165	(1995) Liquid Penetrant Examination Inspection Method
ASTM E709	(1995) Magnetic Particle Examination

ASME INTERNATIONAL (ASME)

ASME B4.1	(1967; R 1994) Preferred Limits and Fits for Cylindrical Parts
ASME BPV IX	(1995) Boiler and Pressure Vessel Code; Section IX, Welding and Brazing Qualifications

AMERICAN WELDING SOCIETY (AWS)

AWS C5.5	(1980) Recommended Practices for Gas Tungsten Arc Welding
AWS D1.1	(2000) Structural Welding Code - Steel
AWS D1.2	(1997) Structural Welding Code - Aluminum

U.S. DEPARTMENT OF LABOR, OCCUPATIONAL SAFETY AND HEALTH
ADMINISTRATION (OSHA)

OSHA 29 CFR 1910	OSHA Safety and Health Standard for General Industry
------------------	---

1.2 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-04 Drawings

Detail Drawings; GA.

Detail drawings for metalwork and machine work shall be submitted and approved prior to fabrication.

SD-07 Schedules

Materials Orders; FIO.

Copies of purchase orders, mill orders, shop orders and work orders for materials shall be submitted prior to the use of the materials in the work.

Materials List; FIO.

Materials list for fabricated items shall be submitted at the time of submittal of detail drawings.

Shipping Bill; FIO.

Shipping bill shall be submitted with the delivery of finished pieces to the site.

SD-08 Statements

Welding Procedures for Structural Steel; FIO.

Schedules of welding procedures for steel structures shall be submitted and approved prior to commencing fabrication.

Welding of Aluminum; FIO.

Schedules of welding processes for aluminum fabrications shall be submitted and approved prior to commencing fabrication.

Structural Steel Welding Repairs; FIO.

Welding repair plans for steel shall be submitted and approved prior to making repairs.

SD-09 Reports

Tests, Inspections, and Verifications; FIO.

Certified test reports for materials shall be submitted with all materials delivered to the site.

SD-13 Certificates

Qualification of Welders and Welding Operators; FIO.

Certifications for welders and welding operators shall be submitted prior to commencing fabrication.

Application Qualification for Steel Studs; FIO.

Certified reports for the application qualification for steel studs shall be submitted and approved prior to commencing fabrication.

Welding of Aluminum; FIO.

Certified report for aluminum welding qualification tests shall be submitted and approved prior to commencing welding.

SD-18 Records

Materials Disposition Records; FIO.

Materials disposition records shall be submitted before completion of contract.

1.3 METALWORK AND MACHINE WORK DETAIL DRAWINGS

Detail drawings for metalwork and machine work shall include catalog cuts, templates, fabrication and assembly details and type, grade and class of material as appropriate. Elements of fabricated items inadvertently omitted on contract drawings shall be detailed by the fabricator and indicated on the detail drawings.

1.4 QUALIFICATION OF WELDERS AND WELDING OPERATORS

The Contractor shall certify that the qualification of welders and welding operators and tack welders who will perform structural steel welding have been qualified for the particular type of work to be done in accordance with the requirements of AWS D1.1, or ASME BPV IX, Section IX, prior to commencing fabrication. The certificate shall list the qualified welders by name and shall specify the code and procedures under which qualified and the date of qualification. Prior qualification will be accepted if welders have performed satisfactory work under the code for which qualified within the preceding three months. The Contractor shall require welders to repeat the qualifying tests when their work indicates a reasonable doubt as to proficiency. Those passing the requalification tests will be recertified. Those not passing will be disqualified until passing. All expenses in connection with qualification and requalification shall be borne by the Contractor.

2 PRODUCTS

2.1 MATERIALS

2.1.1 Materials Orders

The Contractor shall furnish 3 copies of purchase orders, mill orders, shop orders and work orders for all materials orders and items used in the work. Where mill tests are required purchase orders shall contain the test site address and the name of the testing agency.

2.1.2 Materials List

The Contractor shall furnish a materials list of the materials to be used in the fabrication of each item.

2.1.3 Shipping Bill

The Contractor shall furnish a shipping bill or memorandum of each shipment of finished pieces or members to the project site giving the designation mark and weight of each item, the number of items, the total weight, and the car initial and number if shipped by rail in carload lots. Duplicate copies of shipping bills shall be mailed promptly to the Contracting Officer.

2.1.4 Miscellaneous Metals and Standard Articles

2.1.4.1 Structural Steel

ASTM A36, galvanized.

2.1.4.2 Bolts, Nuts, and Washers

As specified in SECTION 05502: METALS: MISCELLANEOUS, STANDARD ARTICLES, SHOP FABRICATED ITEMS.

2.1.4.3 Welding Electrodes

AWS D1.1, E70 Series or as required by AWS Specification.

2.1.4.4 Aluminum

Alloy 6063-T5 or T6, 15,000 psi tensile yield strength minimum.

- a. ASTM B221 and B429 for bars, rods, wires, pipes and tubes.

Electrodes for welding aluminum: AWS D1.2, filler alloy 4043 or 5356.

2.1.4.5 Embedded Anchor Bolts, Expansion Anchor Bolts, Adhesive Anchor Bolts

As specified in SECTION 05502: METALS: MISCELLANEOUS, STANDARD ARTICLES, SHOP FABRICATED ITEMS.

2.1.4.6 Galvanizing Repair Paint

High zinc dust content paint for regalvanizing welds and abrasions. Dried film shall contain not less than 83 percent zinc dust by weight.

2.1.5 MANUFACTURED UNITS

2.1.5.1 Steel Grating

ANSI MBG 531. Minimum depth: 1 1/4 IN. Minimum rectangular bearing bar thickness: 3/16 IN.

Maximum 1-3/16 IN OC spacing. Design live load: Not less than 100 psf plus a concentrated load of 300 LBS with a maximum deflection of 1/300 of span under a superimposed live load of 100 psf. Cross bars: Welded, swagged or pressure locked to bearing beam, maximum spacing 4 IN/OC. Top edges of bars: Serrated or grooved. Individual grating sections: not wider than 3 FT and not more than 100 LBS. Finish: Galvanized. Clips and bolts: Stainless steel or Galvanized. Seat angles: Galvanized

steel. Ends and perimeter edges: Banded. Openings through grating: Reinforced to provide required load carrying capacity and banded with 4 IN high toe plate.

Minimize the amount of field welding. Shop-assemble components into largest size possible commensurate with transportation and handling limitations. Shop connections shall be bolted with high-strength bolts or welded. Provide as a minimum, two 3/4 IN DIA, ASTM A325 high-strength bolts for all bolted connections. Provide friction-type connections for all bolted connections. One-sided or other types of eccentric connections not indicated will not be permitted without prior approval.

2.1.5.2 Stoplogs

As specified in SECTION 05615: STOPLOGS.

2.2 FABRICATION

Provide each fabricated item complete with attachment devices as indicated or required to install.

2.2.1 Structural Fabrication

Structural steel shapes and plate shall be ASTM A36 galvanized, unless noted otherwise on Drawings. Material must be straight before being laid off or worked. If straightening is necessary it shall be done by methods that will not impair the metal. Sharp kinks or bends shall be cause for rejection of the material. Material with welds will not be accepted except where welding is definitely specified, indicated or otherwise approved. Bends shall be made by approved dies, press brakes or bending rolls. Where heating is required, precautions shall be taken to avoid overheating the metal and it shall be allowed to cool in a manner that will not impair the original properties of the metal. Proposed flame cutting of material other than structural steel shall be subject to approval and shall be indicated on detail drawings. Shearing shall be accurate and all portions of the work shall be neatly finished. Corners shall be square and true unless otherwise shown. Re-entrant cuts shall be filleted to a minimum radius of 3/4 inch unless otherwise approved. Finished members shall be free of twists, bends and open joints. Bolts, nuts and screws shall be tight.

2.2.1.1 Dimensional Tolerances for Structural Work

Dimensions shall be measured by an approved calibrated steel tape of approximately the same temperature as the material being measured. The overall dimensions of an assembled structural unit shall be within the tolerances indicated on the drawings or as specified in the particular section of these specifications for the item of work. Where tolerances are not specified in other sections of these

specifications or shown, an allowable variation of 1/32 inch is permissible in the overall length of component members with both ends milled and component members without milled ends shall not deviate from the dimensions shown by not more than 1/16 inch for members 30 feet or less in length and by more than 1/8 inch for members over 30 feet in length. Finished members shall be free from twists, bends and open joints. Sharp kinks, bends and deviation from above tolerances are cause for rejection of material. Comply with requirements of applicable building codes and AISC Specification with modifications and additional requirements specified herein.

2.2.1.2 Structural Steel Fabrication

Structural steel may be cut by mechanically guided or hand-guided torches, provided an accurate profile with a surface that is smooth and free from cracks and notches is obtained. Surfaces and edges to be welded shall be prepared in accordance with AWS D1.1. Where structural steel is not to be welded, chipping or grinding will not be required except as necessary to remove slag and sharp edges of mechanically guided or hand-guided cuts not exposed to view. Hand-guided cuts which are to be exposed or visible shall be chipped, ground or machined to sound metal. Minimize the amount of field welding, shop assemble components into largest size possible commensurate with transportation and handling limitations.

Shop connection shall be bolted with high strength bolts or welded. Provide a minimum of two 3/4 IN DIA, ASTM A325 high strength bolts for all bolted connections.

Provide friction-type connections for all bolted connections.

One-sided or other types of eccentric connections not indicated will not be permitted without prior approval.

2.2.1.3 Galvanized Steel Railing Fabrication

Verify field conditions and dimensions prior to fabrication. For fabrication of items which will be exposed to view, use only materials which are smooth and free of surface blemishes including pitting, seam marks, roller marks, rolled trade names and roughness. Remove blemishes by grinding and buffing or by welding and grinding, prior to cleaning, treating and application of surface finishes.

Form exposed work with smooth, short radius bends, accurate angles and straight edges. Ease exposed edges to a radius of approximately 1/32 IN. Form bent-metal corners to smallest radius

possible without causing grain separation or otherwise impairing work. Drill or punch holes with smooth edges.

Form exposed connections with flush, smooth, hairline joints, using stainless steel or aluminum splice locks to splice sections together or by welding. Top rail splices and expansion joints shall be located within 8 IN of post or other support. Ease the edges of top rail splices and expansion joints and remove all burrs left from cutting.

Design railing and anchorage system to withstand: 200 LB concentrated load applied at any point in any direction to handrail or guardrail, 50 PLF vertical and horizontal uniform load applied simultaneously to the top rail of the guardrail. Concentrated load need not be assumed to act concurrently with uniform load.

Custom fabricate railings to dimensions and profiles indicated. Fabricate all guardrail top rails using minimum 2 IN nominal DIA schedule 40 pipe. Fabricate all guardrail vertical posts using minimum 2 IN nominal DIA schedule 80 pipe. All intermediate horizontal rails of guardrail shall be fabricated using minimum 1-1/2 IN nominal DIA schedule 40 pipe.

Provide a 1-7/8 IN DIA x 8 IN long solid galvanized steel rod welded to the base plate. Fit the vertical post over the solid rod and weld the post to the base plate. Floor flange for vertical guardrail posts mounted to top of concrete surface: 3/8 x 6 x 6 IN octagonal plate welded to both the 1-7/8 IN DIA x 8 IN long solid rod and the vertical post. Base plate predrilled to accept four anchors. Floor flange for vertical guardrail post mounted to metal structure: 3/8 x 2-1/2 x 8 IN plate welded to both the 1-7/8 IN DIA solid rod and the vertical post. Base plate predrilled to accept two anchors.

Provide 3/8 IN x 4 IN flat bar toeboards at all elevated walkways, platforms and stair landings, and where indicated on the Drawings or required by the Building Code or OSHA, whichever requires the more restrictive design.

Fit exposed ends of guardrails and handrails with solid terminations. Where guardrail terminates at a wall provide a vertical post located 4 IN off the wall to center of post.

Preassemble items in shop to greatest extent possible to minimize field splicing and assembly of units at project site.

Guardrail mounted to the side of concrete walls or the edge of concrete slabs or stairs: Provide a bracket specifically designed for mounting guardrail to side of concrete with sleeve for vertical guardrail post.

Predrill bracket for two 3/4 IN anchors. Bracket fabricator to determine number of fasteners required based on load criteria noted in this Specification Section.

All handrails shall have galvanized finish.

Welded Railing Fabrication: All welding to be continuous in accordance with AWS C5.5 and D1.2. All welded railing joints shall have full penetration welds unless noted otherwise. All exposed welds to be ground and buffed smooth and flush to match and blend with adjoining surfaces. No ragged edges, surface defects, or undercutting of adjoining surfaces will be accepted. Finishing joints with filler is not acceptable.

Install weeps to drain water from hollow sections of railing at exterior and high humidity conditions. Drill 1/4 IN weep hole in railing 1 IN above walkway surface at bottom of posts set in concrete or otherwise closed at bottom, and at other low points where moisture can collect. Do not drill weep holes in bottom of base plate.

Expansion Joints: Allow thermal expansion and contraction of railing while still meeting design loading requirements. Expansion joints shall be provided to correspond with concrete expansion joints.

2.2.2 Welding

2.2.2.1 Welding of Structural Steel

a. Welding Procedures for Structural Steel - Welding procedures for structural steel shall be prequalified as described in [AWS D1.1](#), or shall be qualified by tests as prescribed in [AWS D1.1](#). Properly documented evidence of compliance with all requirements of these specifications for previous qualification tests shall establish a welding procedure as prequalified. For welding procedures qualified by tests, the test welding and specimen testing must be witnessed and the test report document signed by the Contracting Officer. Approval of any welding procedure will not relieve the Contractor of the responsibility for producing a finished structure meeting all requirements of these specifications. The Contractor will be directed or authorized to make any changes in previously approved welding procedures that are deemed necessary or desirable by the Contractor Officer. The Contractor shall submit a complete schedule of welding procedures for each steel structure to be welded. The schedule shall conform to the requirements specified

in the provisions AWS D1.1. The schedule shall provide detailed procedure specifications and tables or diagrams showing the procedures to be used for each required joint. Welding procedures must include filler metal, preheat, interpass temperature and stress-relief heat treatment requirements. Each welding procedure shall be clearly identified as being prequalified or required to be qualified by tests. Welding procedures must show types and locations of welds designated or in the specifications to receive nondestructive examination.

b. Welding Process - Welding of structural steel shall be by an electric arc welding process using a method which excludes the atmosphere from the molten metal and shall conform to the applicable provisions of AWS D1.1. Welding shall be such as to minimize residual stresses, distortion and shrinkage. Each welder shall use identifying mark at welds.

c. Welding Technique

(1) Filler Metal - The electrode, electrode-flux combination and grade of weld metal shall conform to the appropriate AWS specification for the base metal and welding process being used or shall be as shown where a specific choice of AWS specification allowables is required. The AWS designation of the electrodes to be used shall be included in the schedule of welding procedures. Only low hydrogen electrodes shall be used for manual shielded metal-arc welding regardless of the thickness of the steel. A controlled temperature storage oven shall be used at the job site as prescribed by AWS D1.1, to maintain low moisture of low hydrogen electrodes.

(2) Preheat and Interpass Temperature - Preheating shall be performed as required by AWS D1.1, or as otherwise specified except that the temperature of the base metal shall be at least 70 degrees F. The weldments to be preheated shall be slowly and uniformly heated by approved means to the prescribed temperature, hold at that temperature until the welding is completed and then permitted to cool slowly in still air. Do not perform welding when ambient temperature is lower than 0 degrees F or where surfaces are wet or exposed to rain, snow, or high wind, or when welders are exposed to inclement conditions.

(3) Stress-Relief Heat Treatment - Where stress relief heat treatment is specified or shown, it shall be in accordance with the requirements of AWS D1.1.

d. Workmanship - Workmanship for welding shall be in accordance with AWS D1.1.

(1) Preparation of Base Metal - Prior to welding the Contractor shall inspect surfaces to be welded to assure compliance with AWS D1.1.

(2) Temporary Welds - Temporary welds required for fabrication and erection shall be made under the controlled conditions prescribed for permanent work. Temporary welds shall be made using low-hydrogen welding electrodes and by welders qualified for permanent work as specified in these specifications. Preheating for temporary welds shall be as required by AWS D1.1 for permanent welds except that the minimum temperature shall be 120 degrees F in any case. In making temporary welds arcs shall not be struck in other than weld locations. Each temporary weld shall be removed and ground flush with adjacent surfaces after serving its purpose.

(3) Tack Welds - Tacks welds that are to be incorporated into the permanent work shall be subject to the same quality requirements as the permanent welds and shall be cleaned and thoroughly fused with permanent welds. Preheating shall be performed as specified above for temporary welds. Multiple-pass tack welds shall have cascaded ends. Defective tack welds shall be removed before permanent welding.

2.2.2.2 Welding of Aluminum

Welding of aluminum shall conform to AA SAS-30 or AWS D1.2. The welding process and welding operators shall be prequalified as required by AWS D1.2. A certified report giving the results of the qualifying tests shall be furnished for approval. A complete schedule of the welding process for each aluminum fabrication to be welded shall be furnished for approval.

2.2.3 Bolted Connections

2.2.3.1 Bolted Structural Steel Connections

Bolts, nuts and washers see SECTION 05502. Where practicable, conceal bolted connections.

a. Bolt Holes - Bolt holes shall be accurately located, smooth, perpendicular to the member and cylindrical. Do not make or enlarge holes by burning.

(1) Holes for regular bolts shall be drilled or subdrilled and reamed in the shop and shall not be more than 1/16 inch larger than the diameter of the bolt.

(2) Holes for fitted bolts shall be match-reamed or drilled in the shop. Burrs resulting from reaming shall be removed. The threads of bolts shall be entirely outside of the holes. The body diameter of bolts shall have tolerances as recommended by [ASME B4.1](#) for the class of fit specified. Fitted bolts shall be fitted in reamed holes by selective assembly to provide an LN-2 fit.

(3) Holes for high strength bolts shall have diameters of not more than 1/16 inch larger than bolt diameters. If the thickness of the material is not greater than the diameter of the bolts the holes may be punched. If the thickness of the material is greater than the diameter of the bolts the holes may be drilled full size or subpunched or subdrilled at least 1/8 inch smaller than the diameter of the bolts and then reamed to full size. Poor matching of holes will be cause for rejection. Drifting occurring during assembly shall not distort the metal or enlarge the holes. Reaming to a larger diameter of the next standard size bolt will be allowed for slight mismatching.

2.2.3.2 Bolted Aluminum Connections

Punching, drilling, reaming and bolting for bolted aluminum connections shall conform to the requirements of [AA SAS-30](#), Section 6.

2.2.4 Machine Work

Tolerances, allowances and gauges for metal fits between plain, non-threaded, cylindrical parts shall conform to [ASME B4.1](#) for the class of fit shown or required unless otherwise shown on approved detail drawings. Where fits are not shown they shall be suitable as approved. Tolerances for machine-finished surfaces designated by non-decimal dimensions shall be within 1/64 inch. Sufficient machining stock shall be allowed on placing pads to ensure true surfaces of solid material. Finished contact or bearing surfaces shall be true and exact to secure full contact. Journal surfaces shall be polished and all surfaces shall be finished with sufficient smoothness and accuracy to ensure proper operation when assembled. Parts entering any machine shall be accurately machined and all like parts shall be interchangeable except that parts assembled together for drilling or reaming of holes or machining will not be required to be interchangeable with like parts. All drilled bolt holes shall be accurately located.

2.2.4.1 Unfinished Surfaces

All work shall be laid out to secure proper matching of adjoining unfinished surfaces unless otherwise directed. Where there is a large discrepancy between adjoining unfinished surfaces they shall be

chipped and ground smooth or machined to secure proper alignment. Unfinished surfaces shall be true to the lines and dimensions shown and shall be chipped or ground free of all projections and rough spots. Depressions or holes not affecting the strength or usefulness of the parts shall be filled in an approved manner.

2.2.5 Miscellaneous Provisions

2.2.5.1 Metallic Coatings

a. Zinc Coatings - Zinc coatings shall be applied in a manner and of a thickness and quality conforming to [ASTM A 123](#). Where zinc coatings are destroyed by cutting, welding or other causes the affected areas shall be regalvanized. Coatings 2 ounces or heavier shall be regalvanized with a suitable low-melting zinc base alloy similar to the recommendations of the American Hot-Dip Galvanizers Association to the thickness and quality specified for the original zinc coating. Coatings less than 2 ounces shall be repaired in accordance with [ASTM A 780](#).

2.2.6 Shop Assembly

Each machinery and structural unit furnished] shall be assembled in the shop to determine the correctness of the fabrication and matching of the component parts unless otherwise specified. Tolerances shall not exceed those shown. Each unit assembled shall be closely checked to ensure that all necessary clearances have been provided and that binding does not occur in any moving part. Assembly in the shop shall be in the same position as final installation in the field unless otherwise specified. Assembly and disassembly work shall be performed in the presence of the Contracting Officer unless waived in writing. Errors or defects disclosed shall be immediately remedied by the Contractor without cost to the Government. Before disassembly for shipment each piece of a machinery or structural unit shall be match-marked to facilitate erection in the field. The location of match-marks shall be indicated by circling with a ring of white paint after the shop coat of paint has been applied or as otherwise directed.

2.3 TESTS, INSPECTIONS, AND VERIFICATIONS

The Contractor shall have required material tests and analyses performed and certified by an approved laboratory to demonstrate that materials are in conformity with the specifications. These tests and analyses shall be performed and certified at the Contractor's expense. Tests, inspections, and verifications shall conform to the requirements of the particular sections of these specifications for the respective items of work unless otherwise specified or authorized. Tests shall be conducted in the presence of the Contracting Officer if so required. The Contractor shall furnish specimens and

samples for additional independent tests and analyses upon request by the Contracting Officer. Specimens and samples shall be properly labeled and prepared for shipment.

2.3.1 Nondestructive Testing

When doubt exists as to the soundness of any material part such part may be subjected to any form of nondestructive testing determined by the Contracting Officer. This may include ultrasonic, magnaflux, dye penetrant, x-ray, gamma ray or any other test that will thoroughly investigate the part in question. The cost of such investigation will be borne by the Government. Any defects will be cause for rejection and rejected parts shall be replaced and retested at the Contractor's expense.

2.3.2 Tests of Machinery and Structural Units

The details for tests of machinery and structural units shall conform to the requirements of the particular sections of these specifications covering these items. Each complete machinery and structural unit shall be assembled and tested in the shop in the presence of the Contracting Officer unless otherwise directed. Waiving of tests will not relieve the Contractor of responsibility for any fault in operation, workmanship or material that occurs before the completion of the contract or guarantee. After being installed at the site each complete machinery or structural unit shall be operated through a sufficient number of complete cycles to demonstrate to the satisfaction of the Contracting Officer that it meets the specified operational requirements in all respects.

2.3.3 Inspection of Structural Steel Welding

The Contractor shall maintain an approved inspection system and perform required inspections in accordance with Contract Clause CONTRACTOR INSPECTION SYSTEM. Welding shall be subject to inspection to determine conformance with the requirements of AWS D1.1, the approved welding procedures and provisions stated in other sections of these specifications. Nondestructive examination of designated welds will be required. Supplemental examination of any joint or coupon cut from any location in any joint may be required.

2.3.3.1 Visual Examination

All visual examination of completed welds shall be cleaned and carefully examined for insufficient throat or leg sizes, cracks, undercutting, overlap, excessive convexity or reinforcement and other surface defects to ensure compliance with the requirements of AWS D1.1.

2.3.3.2 Nondestructive Examination

The nondestructive examination of shop and field welds shall be performed as designated or described in the sections of these specifications covering the particular items of work. Ten percent of all welds shall be tested.

a. Testing Agency - The nondestructive examination of welds and the evaluation of examination tests as to the acceptability of the welds shall be performed by a testing agency adequately equipped and competent to perform such services or by the Contractor using suitable equipment and qualified personnel. In either case written approval of the examination procedures is required and the examination tests shall be made in the presence of the Contracting Officer. The evaluation of examination tests shall be subject to the approval and all records shall become the property of the Government.

b. Examination Procedures - Examination procedures shall conform to the following requirements.

(1) Ultrasonic Testing - Making, evaluating and reporting ultrasonic testing of welds shall conform to the requirements of AWS D1.1. The ultrasonic equipment shall be capable of making a permanent record of the test indications. A record shall be made of each weld tested.

(2) Radiographic Testing - Making, evaluating and reporting radiographic testing of welds shall conform to the requirements of AWS D1.1.

(3) Magnetic Particle Inspection - Magnetic particle inspection of welds shall conform to the applicable provisions of ASTM E 709.

(4) Dye Penetrant Inspection - Dye penetrant inspection of welds shall conform to the applicable provisions of ASTM E 165.

c. Acceptability of Welds - Welds shall be unacceptable if shown to have defects prohibited by AWS D1.1, Subsection 9.25 or possess any degree of incomplete fusion, inadequate penetration or undercutting.

2.3.3.3 Test Coupons

The Government reserves the right to require the Contractor to remove coupons from completed work when doubt as to soundness cannot be resolved by nondestructive examination. Should tests of any two coupons cut from the work of any welder show strengths less than that specified for the base metal it will be considered evidence of negligence or incompetence and such welder shall be removed from the work. When coupons are removed from any part of a structure the members cut shall be repaired in a neat manner with joints of the proper type to develop the full strength of the members. Repaired joints shall be peened as approved or directed to relieve residual stress. The expense for removing and testing coupons, repairing cut members and the nondestructive examination of repairs shall be borne by the Government or the Contractor in accordance with the Contract Clauses INSPECTION AND ACCEPTANCE.

2.3.3.4 Supplemental Examination

When the soundness of any weld is suspected of being deficient due to faulty welding or stresses that might occur during shipment or erection the Government reserves the right to perform nondestructive supplemental examinations before final acceptance. The cost of such inspection will be borne by the Government.

2.3.4 Structural Steel Welding Repairs

Defective welds in the structural steel welding repairs shall be repaired in accordance with AWS D1.1. Defective weld metal shall be removed to sound metal by use of air carbon-arc or oxygen gouging. The surfaces shall be thoroughly cleaned before welding. Welds that have been repaired shall be retested by the same methods used in the original inspection. Except for the repair of members cut to remove test coupons and found to have acceptable welds costs of repairs and retesting shall be borne by the Contractor.

3 EXECUTION

3.1 INSTALLATION

All parts to be installed shall be thoroughly cleaned. Packing compounds, rust, dirt, grit and other foreign matter shall be removed. Holes and grooves for lubrication shall be cleaned. Where units or items are shipped as assemblies they will be inspected prior to installation. Disassembly, cleaning and lubrication will not be required except where necessary to place the assembly in a clean and properly lubricated condition. Pipe wrenches, cold chisels or other tools likely to cause damage to the surfaces of rods, nuts or other parts shall not be used for assembling and tightening parts. Bolts and screws shall be tightened firmly and uniformly but care shall be taken not to overstress the threads. When a

half nut is used for locking a full nut the half nut shall be placed first and followed by the full nut. Threads of all bolts except high strength bolts, nuts and screws shall be lubricated with an approved lubricant before assembly. Threads of corrosion-resisting steel bolts and nuts shall be coated with an approved antigalling compound. Driving and drifting bolts or keys will not be permitted. After erection, grind smooth all sharp surface irregularities resulting from field cutting or welding; power tool clean welds, bolts, washers and abrasions to shop coat removing all rust and foreign matter.

3.1.1 Alignment and Setting

Each machinery or structural unit shall be accurately aligned by the use of steel shims or other approved methods so that no binding in any moving parts or distortion of any member occurs before it is fastened in place. The alignment of all parts with respect to each other shall be true within the respective tolerances required. Machines shall be set true to the elevations shown.

3.1.2 Blocking and Wedges

All blocking and wedges used during installation for the support of parts to be grouted in foundations shall be removed before final grouting unless otherwise directed. Blocking and wedges left in the foundations with approval shall be of steel or iron.

3.1.3 Anchor Bolts

See SECTION 05502; METALS: MISCELLANEOUS, STANDARD ARTICLES, SHOP FABRICATED ITEMS.

3.1.4 Bolted Connections

Install ASTM A325 bolts with hardened washers. Install and tighten in accordance with Section 8 of Specifications for Structural Joints. Coordinate installation with inspection. Do not start installation until coordination with Testing Agency is complete. Slip critical connections: Perform calibration testing for all methods of installation of high-strength bolts in accordance with Section 8(b) of Specification for Structural Joints, using ASTM A325 bolts.

1. Turn-of-nut tightening: Torque wrenches shall be used only by laboratory personnel.
2. Calibrated wrench tightening: Calibrate on a daily basis.
3. Direct tension indicator tightening: If previously approved by Contracting Officer.

4. Installation of alternate design bolts: If previously approved by Contracting Officer.

In the event any bolt in a connection is found to be defective, check and retighten all bolts in the connection.

Do not use gas cutting to correct fabrication errors. In case members do not fit or holes do not match, ream out the holes and insert the next larger size bolt. If the connections require new holes, then drill new holes. Make no such corrections without prior approval of the Contracting Officer. Burning of holes: Not permitted.

Tighten and leave in place erection bolts used in welded construction.

Provide beveled washers to give full bearing to bolt head or nut where bolts are to be used on surfaces having slopes greater than 1 in 20 with a plane normal to bolt axis.

After bolts are tightened, upset threads of A307 unfinished bolts and anchor bolts to prevent nuts from backing off.

3.1.5 Steel Grating

Attach grating to end and intermediate supports with grating saddle clips and bolts. Maximum spacing: at 2 FT OC with a minimum of two per side. Attach individual units of grating together with clips at 2 FT OC maximum with a minimum of two clips per side.

3.1.6 Galvanized Steel Railings

Provide welded type railings. Install products in accordance with manufacturer's instructions. Set work accurately in location, alignment and elevation, plumb, level, and true. Measure from established lines and items which are to be built into concrete, masonry or similar construction. Align railings prior to securing in place to assure proper matching at butting and expansion joints and correct alignment throughout their length. Space vertical posts as required by loading requirements but not more than 4 FT on center. Provide shims as required.

Install proper sized expansion joints based on temperature at time of installation and differential coefficient of expansion of materials in all railings as recommended by manufacturer. Joints to be designed to allow expansion and contraction of railing and still meet design load requirements.

Provide floor flange at corner and termination posts.

Anchor railings to concrete with minimum 1/2 IN stainless steel adhesive anchors with stainless steel bolts, nuts and washers.

Anchor railings to metal beams and stairs stringers with minimum 1/2 IN stainless steel bolts, nuts and washers.

3.2 PROTECTION OF FINISHED WORK

3.2.1 Machined Surfaces

Machined surfaces shall be thoroughly cleaned of foreign matter. All finished surfaces shall be protected by suitable means. Unassembled pins and bolts shall be oiled and wrapped with moisture resistant paper or protected by other approved means. Finished surfaces of ferrous metals to be in bolted contact shall be washed with an approved rust inhibitor and coated with an approved rust resisting compound for temporary protection during fabrication, shipping and storage periods. Finished surfaces of metals which shall be exposed after installation except galvanized steel or nonferrous metals shall be painted as specified in SECTION 09900: PAINTING, GENERAL.

3.2.2 Galvanized Surfaces

Repair damaged galvanized surfaces in accordance with ASTM A780. Prepare damaged surfaces by abrasive blasting or power sanding. Apply galvanizing repair paint in accordance with manufacturer's instructions. Minimum thickness: larger of 6 mils DFT or manufacturer's standard.

3.2.3 Aluminum

Aluminum that shall be in contact with grout, concrete or structural steel shall be protected from galvanic or corrosive action as specified in SECTION 09900: PAINTING, GENERAL.

3.3 TESTS

3.3.1 Workmanship

Workmanship shall be of the highest grade and in accordance with the best modern practices to conform with the specifications for the item of work being furnished.

3.3.2 Production Welding

Production welding shall conform to the requirements of AWS D1.1 or AWS D1.2 as applicable.

SECTION 05502

METALS: MISCELLANEOUS, STANDARD ARTICLES, SHOP FABRICATED ITEMS
11/00

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 307	(1994) Carbon Steel Bolts and Studs, 60 000 psi Tensile Strength
ASTM A 325	(1996) Structural Bolts, Steel, Heat Treated, 120/105 ksi Minimum Tensile Strength
ASTM F 593	(1998) Stainless Steel Bolts, Hex Cap Screws, and Studs
ASTM F 594	(1998) Stainless Steel Nuts

1.2 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-07 Schedules

Miscellaneous Metals and Standard Metal Articles; FIO.

Lists of materials shall be submitted for approval as specified and in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

SD-09 Reports

Miscellaneous Metals and Standard Metal Articles; FIO.

Certified test reports for materials tests and analyses shall be submitted for approval as specified and in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

SD-14 Samples

Miscellaneous Metals and Standard Metal Articles; GA.

Samples shall be submitted for approval as specified and in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS. Samples of standard or fabricated items shall be full size and complete as required for

installation in the work, and may be installed in the work, provided each sample is clearly identified and its location recorded.

SD-18 Records

Miscellaneous Metals and Standard Metal Articles; FIO.

Records which identify the disposition of approved material and fabricated items in the work must be submitted for approval as specified and in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

1.3 FABRICATION AND WORKMANSHIP REQUIREMENTS

Fabrication requirements and workmanship provisions for items specified in this section shall conform with the requirements of Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2 PRODUCTS

2.1 MISCELLANEOUS METALS AND STANDARD METAL ARTICLES

Miscellaneous metal materials and standard metal articles shall conform to the respective specifications and other designated requirements. Sizes shall be as specified or shown. Where material requirements are not specified, materials furnished shall be suitable for the intended use and shall be subject to approval.

2.1.1 Bolts, Nuts, and Washers

Bolts, nuts, and washers shall be of the material, grade, type, class, style and finish indicated or best suited for intended use.

2.1.1.1 High-Strength Bolts, Nuts, and Washers

ASTM A 325, hot-dip galvanized.

2.1.1.2 Bolts, Nuts, and Washers (Other Than High-Strength)

Bolts and Nuts - ASTM A 307, Grade A, hot-dip galvanized.

2.1.1.3 Washers

All nuts shall be equipped with washers of matching material. Provide beveled washers to give full bearing to bolt head or nut where bolts are to be used on surfaces having slopes greater than 1 in 20 with a plane normal to bolt axis.

2.1.2 Expansion Anchor Bolts and Adhesive Anchor Bolts

Material: ASTM F593 Stainless steel, Type 304 or 316. Provide type 316 unless noted otherwise. Provide minimum edge distance cover and spacing as recommended by manufacturer, or as indicated on Drawings whichever is larger. Depth of embedment: minimum embedment as recommended by manufacturer or nine diameters of bolt, whichever is larger. Notify Contracting Officer if required depth of embedment cannot be achieved at a particular anchor bolt location. Follow manufacturer's recommendations for installation and torque.

Submit manufacturer's load test data to verify at least the anchor bolt capacities at the following embedment depths: (Data must be based on actual tests performed in unreinforced mass concrete of not more than 4000 psi compressive strength. Capacity must be at a concrete temperature of at least 130 DegF.)

ANCHOR BOLT DIAMETER (IN)	MINIMUM EMBEDMENT (IN)	MINIMUM ULTIMATE TENSION CAPACITY (KIP)
1/2	4-1/2	8.1
5/8	5-5/8	11.4
3/4	6-3/4	15.4
7/8	7-7/8	20.1
1	9	24.7
1-1/4	11-1/4	34.3

3 EXECUTION

3.1 BOLTS TO CONCRETE

3.1.1 Expansion Anchor Bolts and Adhesive Anchor Bolts

Install in strict accordance with manufacturer's instructions for hole size, hole cleaning, installation, torque requirements substrate temperature and curing. Use only carbide-tipped drilling equipment.

SECTION 05615

STOPLOGS

01/01

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 36	(1994) Carbon Structural Steel
ASTM B 221	(1995a) Aluminum and Aluminum-Alloy Extruded Bars, Rods, Wire, Shapes, and Tubes
ASTM B 308	(1995a) Aluminum-Alloy 6061-T6 Standard Structural Shapes
ASTM D 395	(1989; R 1994) Rubber Property - Compression Set
ASTM D 412	(1992) Vulcanized Rubber and Thermoplastic Rubbers and Thermoplastic Elastomers - Tension
ASTM D 413	(1982; R 1993) Rubber Property - Adhesion to Flexible Substrate
ASTM D 471	(1995) Rubber Property - Effect of Liquids
ASTM D 2240	(1995) Rubber Property - Durometer Hardness

1.2 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with Section 01330 SUBMITTAL PROCEDURES:

SD-04 Drawings

Detail Drawings; GA.

Detail drawings shall be submitted as specified in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

SD-07 Schedules

Materials; FIO.

Materials orders, materials lists and materials shipping bills shall be submitted as specified in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

SD-08 Statements

Welding; FIO.

Schedules of welding procedures for structural steel [and welding processes for aluminum] shall be submitted as specified in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

SD-09 Reports

Tests, Inspections, and Verifications; FIO.

Certified test reports for material tests shall be submitted with all materials delivered to the site.

SD-18 Records

Materials Disposition Records; FIO.

A system of identification which shows the disposition of specific lots of approved materials and fabricated items in the work shall be established and submitted before completion of the contract.

SD-19 Operation and Maintenance Manuals

Operation and Maintenance Manuals; FIO

Submit O&M Manuals for stoplogs before completion of the contract.

1.3 QUALIFICATION OF WELDERS AND WELDING OPERATORS

Qualification of welders and welding operators shall conform to the requirements of SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

1.4 DELIVERY, STORAGE AND HANDLING

Delivery, handling and storage of materials and fabricated items shall conform to the requirements specified in SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

1.4.1 Rubber Seals

Rubber seals shall be stored in a place which permits free circulation of air, maintains a temperature of 70 degrees F or less, and prevents the rubber from being exposed to the direct rays of the sun. Rubber seals shall be kept free of oils, grease, and other materials which would deteriorate the rubber. Rubber seals shall not be distorted during handling.

2 PRODUCTS

2.1 MATERIALS

Materials orders, materials lists and materials shipping bills shall conform to the requirements of SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS..

2.1.1 Metals

Structural steel, structural aluminum, and other metal materials sections and standard articles shall be as shown and as specified herein and in SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.1.1.1 Structural Aluminum

Structural aluminum shall conform to **ASTM B 221 and B308**, Alloy 6061, Temper T6.

2.1.2 Rubber Seals

Rubber seals shall be fluorocarbon (Teflon) clad rubber seals of the mold type only, shall be compounded of natural rubber, synthetic polyisoprene, or a blend of both, and shall contain reinforcing carbon black, zinc oxide, accelerators, antioxidants, vulcanizing agents, and plasticizers. Physical characteristics of the seals shall meet the following requirements:

PHYSICAL TEST	TEST VALUE	TEST METHOD SPECIFICATION
Tensile Strength	2,500 psi (min.)	ASTM D 412
Elongation at Break	450% (min.)	ASTM D 412
300% Modulus	900 psi (min.)	ASTM D 412
Durometer Hardness (Shore Type A)	60 to 70	ASTM D 2240
*Water Absorption	5% by weight (max.)	ASTM D 471
Compression Set	30% (max.)	ASTM D 395

* The "Water Absorption" test shall be performed with distilled water. The washed specimen shall be blotted dry with filter paper or other absorbent material and suspended by means of small glass rods in the oven at a temperature of 70 degrees plus/minus 2 degrees C for 22 plus/minus 1/4 hour. The specimen shall be removed, allowed to cool to room temperature in air, and weighed. The weight shall be recorded to the nearest 1 mg as W1 (W1 is defined in ASTM D 471). The immersion temperature shall be 70 degrees plus/minus 1 degree C and the duration of immersion shall be 166 hours.

2.1.2.1 Fabrication

Rubber seals shall have a fluorocarbon film vulcanized and bonded to the sealing surface of the bulb. The film shall be 0.060 inch thick Huntington

Abrasion Resistant Fluorocarbon Film No. 4508, or equal, and shall have the following physical properties:

Tensile strength 2,000 psi (min.)

Elongation 250 percent (min.)

The outside surface of the bonded film shall be flush with the surface of the rubber seal and shall be free of adhering or bonded rubber. Strips and corner seals shall be molded in lengths suitable for obtaining the finish lengths shown and with sufficient excess length to provide test specimens for testing the adequacy of the adhesion bond between the film and bulb of the seal. At one end of each strip or corner seal to be tested, the fluorocarbon film shall be masked during bonding to prevent a bond for a length sufficient to hold the film securely during testing.]

2.2 MANUFACTURED UNITS

Bolts, nuts, and washers shall conform to the requirements specified and in SECTION 05502: METALS: MISCELLANEOUS, STANDARD ARTICLES, SHOP FABRICATED ITEMS.

Manufactured units shall conform to the requirements specified and in SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.3 FABRICATION

2.3.1 Detail Drawings

Detail drawings of stoplogs and appurtenant shop fabricated items, including fabrication drawings, shop assembly drawings, delivery drawings, and field installation drawings, shall conform to the requirements specified and in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.3.1.1 Fabrication Drawings

Fabrication drawings shall show complete details of materials, tolerances, connections, and proposed welding sequences which clearly differentiate shop welds and field welds.

2.3.1.2 Shop Assembly Drawings

Shop assembly drawings shall provide details for connecting the adjoining fabricated components in the shop to assure satisfactory field installation.

2.3.1.3 Delivery Drawings

Delivery drawings shall provide descriptions of methods of delivering components to the site, including details for supporting fabricated components during shipping to prevent distortion or other damages.

2.3.1.4 Field Installation Drawings

Field installation drawings shall provide a detailed description of the field installation procedures. The description shall include the location and method of support of installation and handling equipment; provisions to

be taken to protect concrete and other work during installation; method of maintaining components in correct alignment; and methods for installing appurtenant items.

2.3.2 Structural Fabrication

Structural fabrication shall conform to the requirements specified and in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.3.3 Welding

Welding shall conform to the requirements specified in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.3.4 Bolted Connections

Bolted connections shall conform to the requirements specified in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.3.5 Machine Work

Machine work shall conform to the requirements specified in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.3.6 Miscellaneous Provisions

Miscellaneous provisions for fabrication shall conform to the requirements specified and in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.3.7 Fabrications

2.3.7.1 Stoplogs

Stoplogs shall be fabricated of aluminum 15,000 psi tensile yield strength minimum Alloy 6061, Temper T6.

Timber stoplogs 12 inches deep by 4 inches wide treated hard wood with a minimum allowable bending stress of 700 psi and a minimum modulus of elasticity of 1000 ksi may be substituted for the aluminum stoplogs.

2.3.7.2 Stoplog Guides

Stoplog guides shall be fabricated of structural steel conforming to ASTM A 36, hot-dip galvanized as specified in SECTION 5055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.3.7.3 Miscellaneous Embedded Metals

Corner protection angles, frames, base plates, and other embedded metal items required for complete installation shall conform to the details shown.

2.3.8 Seal Assemblies

Seal assemblies shall consist of rubber seals, stainless steel retainer and spacer bars, and fasteners. Rubber seals shall be continuous over the full length. Seals shall be accurately fitted and drilled for proper

installation. Bolt holes shall be drilled in the rubber seals by using prepared templates or the retainer bars as templates. Splices in seals shall be fully molded, develop a minimum tensile strength of 50 percent of the unspliced seal, and occur only at locations shown on fabrication drawings. All vulcanizing of splices shall be done in the shop. The vulcanized splices between molded corners and straight lengths shall be located as close to the corners as practicable. Splices shall be on a 45 degree bevel related to the "thickness" of the seal. The surfaces of finished splices shall be smooth and free of irregularities. Stainless steel retainer bars shall be field-spliced only where shown and machine-finished after splicing.

2.4 TESTS, INSPECTIONS, AND VERIFICATIONS

Tests, inspections, and verifications for materials shall conform to the requirements specified in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.4.1 Testing of Rubber Seals

The fluorocarbon film of rubber seals shall be tested for adhesion bond in accordance with ASTM D 413 using either the machine method or the deadweight method. A 1 inch long piece of seal shall be cut from the end of the seal which has been masked and subjected to tension at an angle approximately 90 degrees to the rubber surface. There shall be no separation between the fluorocarbon film and the rubber when subjected to a load of 30 pounds per inch width.

Failure of any specimen to meet the requirements of the test used will be cause for rejection of the piece from which the test specimen was taken.

3 EXECUTION

3.1 INSTALLATION

Installation shall conform to the requirements specified and in SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

3.1.1 Embedded Metals

Corner protection angles, frames, base plates, and other embedded metal items required for complete installation shall be accurately installed to the alignment and grade required to ensure accurate fitting and matching of components. Anchors for embedded metals shall be installed as shown. Items requiring two concrete pours for installation shall be attached to the embedded anchors after the initial pour, adjusted to the proper alignment, and concreted in place with the second pour.

3.1.2 Seal Assemblies

Rubber seal assemblies shall be installed after the embedded metal components have been concreted in place and the gate installation, including painting, completed. Rubber seals shall be fastened securely to metal retainers. Before operating the gates, a suitable lubricant shall be applied to the rubber seal rubbing plates to protect the rubber.

3.2 PROTECTION OF FINISHED WORK

Protection of finished work shall conform to the requirements specified in Section 05055 METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

3.3 ACCEPTANCE TRIAL OPERATION

After completion of installation, the Contracting Officer will examine the stoplog installation for final acceptance. The individual components of the stoplog installation will be examined first to determine whether or not the workmanship conforms to the specification requirements. The Contractor will be required to place the stoplogs in the guides a sufficient number of times to demonstrate that the stoplogs fit properly and seat uniformly. Required repairs or replacements to correct defects, shall be made at no cost to the Government. The trial operation shall be repeated after defects are corrected.

SECTION 09900

PAINTING, GENERAL

11/00

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN CONFERENCE OF GOVERNMENTAL INDUSTRIAL HYGIENISTS (ACGIH)

ACGIH Limit Values (1996) Threshold Limit Values for Chemical Substances and Physical Agents and Biological exposure Indices

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM D 4214 (1998) Evaluating Degree of Chalking of Exterior Paint Films

COMMERCIAL ITEM DESCRIPTIONS (CID)

CID A-A-1632 (Basic) Varnish, Asphalt

CID A-A-2867 Coating, Polyurethane, Single Component Moisture Cure, Aliphatic

CID A-A-2962 (Rev A) Enamel, Alkyd (Metric)

THE SOCIETY FOR PROTECTIVE COATINGS (SSPC)

SSPC Paint 5 (1995) Zinc Dust, Zinc Oxide and Phenolic Varnish Paint

SSPC SP 1 (1982) Solvent Cleaning

SSPC SP 2 (1995) Hand Tool Cleaning

SSPC SP 3 (1995) Power Tool Cleaning

SSPC SP 6 (1994) Commercial Blast Cleaning

SSPC SP 7 (1994) Brush-Off Blast Cleaning

1.2 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-01 Data

Paint; FIO.

The names, quantity represented, and intended use for the proprietary brands of materials proposed to be substituted for the specified materials [when the required quantity of a particular batch is 50 gallons or less.] [regardless of quantities in states where VOC content limitations apply.]

SD-06 Instructions

Mixing and Thinning; FIO. Application; FIO.

Manufacturer's current printed product description, material safety data sheets (MSDS) and technical data sheets for each coating system. Detailed mixing, thinning and application instructions, minimum and maximum application temperature, and curing and drying times between coats for epoxy, moisture-curing polyurethane, and liquid glaze coatings. Detailed application instructions for textured coatings shall be provided.

SD-09 Reports

Paint; FIO

A statement as to the quantity represented and the intended use, plus the following test report for batches in excess of 50 gallons:

- a. A test report showing that the proposed batch to be used meets specified requirements:
- b. A test report showing that a previous batch of the same formulation as the batch to be used met specified requirements, plus, on the proposed batch to be used, a report of test results for properties of weight per gallon, viscosity, fineness of grind, drying time, color, and gloss.

SD-13 Certificates

Lead; FIO. Volatile Organic Compound (VOC) Content; FIO.

Certificate stating that paints for interior use contain no mercurial mildewcide or insecticide. Certificate stating that paints proposed for use contain not more than 0.06 percent lead by weight of the total nonvolatile. Certificate stating that paints proposed for use meet Federal VOC regulations and those of the of the local Air Pollution Control Districts having jurisdiction over the geographical area in which the project is located.

SD-14 Samples

Moisture-Curing Polyurethane; FIO.

A complete moisture-curing polyurethane system applied to a panel of the same material as that on which the coating will be applied in the work and for each color specified. The sample panels will be used for quality control in applying the system.

Paint; FIO.

While the material is at the site or source of supply, and at a time agreeable to the Contractor and the Contracting Officer, a 1 quart sample of each color and batch, except for quantities of 50 gallons or less, shall be taken by random selection from the sealed containers by the Contractor in the presence of a representative of the Contracting Officer. The contents of the containers to be sampled shall be thoroughly mixed to ensure that the sample is representative. Samples shall be identified by designated name, specification number, manufacturer name and address, batch number, project contract number, intended use, and quantity involved.

1.3 PACKAGING, LABELING, AND STORING

Paints shall be in sealed containers that legibly show the designated name, formula or specification number, batch number, color, quantity, date of manufacture, manufacturer's formulation number, manufacturer's directions including any warnings and special precautions, and name of manufacturer. Pigmented paints shall be furnished in containers not larger than 5 gallons. Paints and thinner shall be stored in accordance with the manufacturer's written directions and as a minimum stored off the ground, under cover, with sufficient ventilation to prevent the buildup of flammable vapors and at temperatures between 40 and 95 degrees F. Paints shall be stored on the project site or segregated at the source of supply sufficiently in advance of need to allow 30 days for testing.

1.4 APPROVAL OF MATERIALS

When samples are tested, approval of materials will be based on tests of the samples; otherwise, materials will be approved based on test reports furnished with them. If materials are approved based on test reports furnished, samples will be retained by the Government for testing should the materials appear defective during or after application. In addition to any other remedies under the contract the cost of retesting defective materials will be at the Contractor's expense.

1.5 ENVIRONMENTAL CONDITIONS

Unless otherwise recommended by the paint manufacturer, the ambient temperature shall be between 45 and 95 degrees F when applying coatings other than water-thinned, epoxy, and moisture-curing polyurethane coatings. Water-thinned coatings shall be applied only when ambient temperature is between 50 and 90 degrees F. Epoxy, and moisture-curing polyurethane coatings shall be applied only within the minimum and maximum temperatures recommended by the coating manufacturer. Moisture-curing polyurethane shall not be applied when the relative humidity is below 30 percent.

1.6 SAFETY AND HEALTH

Work shall comply with applicable Federal, State, and local laws and regulations, and with the ACCIDENT PREVENTION PLAN, including the Activity Hazard Analysis as specified in the CONTRACT CLAUSES. The Activity Hazard Analysis shall include analyses of the potential impact of painting operations on painting personnel and on others involved in and adjacent to the work zone.

1.6.1 Worker Exposures

Exposure of workers to hazardous chemical substances shall not exceed limits established by ACGIH Limit Values, or as required by a more stringent applicable regulation.

1.6.2 Toxic Compounds

Toxic products having ineffective physiological warning properties, such as no or low odor or irritation levels, shall not be used unless approved by the Contracting Officer.

1.6.3 Training

Workers having access to an affected work area shall be informed of the contents of the applicable material safety data sheets (MSDS) and shall be informed of potential health and safety hazard and protective controls associated with materials used on the project. An affected work area is one which may receive mists and odors from the painting operations. Workers involved in preparation, painting and clean-up shall be trained in the safe handling and application, and the exposure limit, for each material which the worker will use in the project. Personnel having a need to use respirators and masks shall be instructed in the use and maintenance of such equipment.

1.6.4 Coordination

Work shall be coordinated to minimize exposure of building occupants, other Contractor personnel, and visitors to mists and odors from preparation, painting and clean-up operations.

2 PRODUCTS

2.1 PAINT

The term "paint" as used herein includes emulsions, enamels, paints, stains, varnishes, sealers, cement-emulsion filler, and other coatings, whether used as prime, intermediate, or finish coat. Paint shall conform to the requirements listed in the painting schedules at the end of this section, except when the required amount of a material of a particular batch is 50 gallons or less, an approved first-line proprietary paint material with similar intended formulation, usage and color to that specified may be used. Additional requirements are as follows:

2.1.1 Colors and Tints

Colors shall be as selected from manufacturer's standard colors, as indicated. Manufacturer's standard color is for identification of color only. Tinting of epoxy and urethane paints shall be done by the manufacturer. Stains shall conform in shade to manufacturer's standard color. The color of the undercoats shall vary slightly from the color of the next coat.

2.1.2 Lead

Paints containing lead in excess of 0.06 percent by weight of the total nonvolatile content (calculated as lead metal) shall not be used.

2.1.3 Chromium

Paints containing zinc chromate or strontium chromate pigments shall not be used.

2.1.4 Volatile Organic Compound (VOC) Content

Paints shall comply with applicable federal, state and local laws enacted to insure compliance with Federal Clean Air Standards and shall conform to the restrictions of the local air pollution control authority.

3 EXECUTION

3.1 PROTECTION OF AREAS NOT TO BE PAINTED

Items not to be painted which are in contact with or adjacent to painted surfaces shall be removed or protected prior to surface preparation and painting operations. Items removed prior to painting shall be replaced when painting is completed. Following completion of painting, workmen skilled in the trades involved shall reinstall removed items. Surfaces contaminated by coating materials shall be restored to original condition.

3.2 SURFACE PREPARATION

Surfaces to be painted shall be clean and free of foreign matter before application of paint or surface treatments. Oil and grease shall be removed prior to mechanical cleaning. Cleaning shall be programmed so that dust and other contaminants will not fall on wet, newly painted surfaces. Exposed ferrous metals such as nail heads on or in contact with surfaces to be painted with water-thinned paints, shall be spot-primed with a suitable corrosion-inhibitive primer capable of preventing flash rusting and compatible with the coating specified for the adjacent areas.

3.2.1 Ferrous Surfaces

Ferrous surfaces including those that have been shop-coated, shall be solvent-cleaned or detergent-washed in accordance with **SSPC SP 1**. Surfaces that contain loose rust, loose mill scale, and other foreign substances shall be cleaned mechanically with hand tools according to **SSPC SP 2**, power tools according to **SSPC SP 3** or by sandblasting according to **SSPC SP 7/NACE 4**. Shop-coated ferrous surfaces shall be protected from corrosion by treating and touching up corroded areas immediately upon detection.

3.2.2 Nonferrous Metallic Surfaces

Galvanized, aluminum and aluminum-alloy, lead, copper, and other nonferrous metal surfaces shall be solvent-cleaned or detergent-washed in accordance with **SSPC SP 1**.

3.2.3 Previously Painted Surfaces

Previously painted surfaces damaged during construction shall be thoroughly cleaned of all grease, dirt, dust or other foreign matter. Blistering, cracking, flaking and peeling or other deteriorated coatings shall be removed. Slick surfaces shall be roughened. Damaged areas such as, but not limited to, nail holes, cracks, chips, and spalls shall be repaired with

suitable material to match adjacent undamaged areas. Edges of chipped paint shall be feather edged and sanded smooth. Rusty metal surfaces shall be cleaned as per SSPC requirements. Solvent, mechanical, or chemical cleaning methods shall be used to provide surfaces suitable for painting. Chalk shall be removed so that when tested in accordance with [ASTM D 4214](#), the chalk resistance rating is no less than 8. New, proposed coatings shall be compatible with existing coatings. If existing surfaces are glossy, the gloss shall be reduced.

3.3 MIXING AND THINNING

When thinning is approved as necessary to suit surface, temperature, weather conditions, or application methods, paints may be thinned in accordance with the manufacturer's directions. When thinning is allowed, paints shall be thinned immediately prior to application with not more than 1 pint of suitable thinner per gallon. The use of thinner shall not relieve the Contractor from obtaining complete hiding, full film thickness, or required gloss. Thinning shall not cause the paint to exceed limits on volatile organic compounds. Paints of different manufacturers shall not be mixed.

3.3.1 Two-Component Systems

Two-component systems shall be mixed in accordance with manufacturer's instructions. Any thinning of the first coat to ensure proper penetration and sealing shall be as recommended by the manufacturer for each type of substrate.

3.4 APPLICATION

Painting practices shall comply with applicable federal, state and local laws enacted to insure compliance with Federal Clean Air Standards. Unless otherwise specified or recommended by the paint manufacturer, paint may be applied by brush, roller, or spray. At the time of application, paint shall show no signs of deterioration. Uniform suspension of pigments shall be maintained during application. Each coat of paint shall be applied so dry film shall be of uniform thickness and free from runs, drops, ridges, waves, pinholes or other voids, laps, brush marks, and variations in color, texture, and finish. Hiding shall be complete. Rollers for applying paints and enamels shall be of a type designed for the coating to be applied and the surface to be coated. Special attention shall be given to insure that all edges, corners, crevices, welds, and rivets receive a film thickness equal to that of adjacent painted surfaces. Paints, except water-thinned types, shall be applied only to surfaces that are completely free of moisture as determined by sight or touch.

3.4.1 Ventilation

Affected areas shall be ventilated during paint application so that workers exposure to chemical substances shall not exceed established limits.

3.4.2 Respirators

Operators and personnel in the vicinity of operating paint sprayers shall wear respirators.

3.4.3 First Coat

The first coat on surfaces shall include repeated touching up of suction spots or overall application of primer or sealer to produce uniform color and gloss. Excess sealer shall be wiped off after each application.

3.4.4 Timing

Surfaces that have been cleaned, pretreated, and otherwise prepared for painting shall be given a coat of the specified first coat as soon as practical after such pretreatment has been completed, but prior to any deterioration of the prepared surface. Sufficient time shall elapse between successive coats to permit proper drying. This period shall be modified as necessary to suit weather conditions. Oil-based or oleoresinous solvent-type paints shall be considered dry for recoating when the paint feels firm, does not deform or feel sticky under moderate pressure of the thumb, and the application of another coat of paint does not cause the undercoat to lift or lose adhesion. Manufacturer's instructions for application, curing and drying time between coats of two-component systems shall be followed.

3.4.5 Ferrous-Metal Primer

Primer for ferrous-metal shall be applied to ferrous surfaces to receive paint other than asphalt varnish prior to deterioration of the prepared surface. The semitransparent film applied to some pipes and tubing at the mill is not to be considered a shop coat, but shall be overcoated with the specified ferrous-metal primer prior to application of finish coats.

3.5 MISCELLANEOUS PAINTING

3.4.6 Lettering

Lettering shall be provided as scheduled on the drawings, shall be block type, and shall be black enamel. Samples shall be approved before application.

3.5 SURFACES TO BE PAINTED

Surfaces listed in the painting schedules at the end of this section, other than those listed in paragraph SURFACES NOT TO BE PAINTED, shall be painted as scheduled.

3.6 SURFACES NOT TO BE PAINTED

Surfaces in the following areas shall not to be painted:

1. Concrete.
2. Metals fully embedded in concrete (except aluminum)
3. Factory name plates.
4. Galvanized steel items.
5. Aluminum items, including guardrail.

3.7 CLEANING

Cloths, cotton waste and other debris that might constitute a fire hazard shall be placed in closed metal containers and removed at the end of each day. Upon completion of the work, staging, scaffolding, and containers

shall be removed from the site or destroyed in an approved manner. Paint and other deposits on adjacent surfaces shall be removed and the entire job left clean and acceptable.

3.8 PAINTING SCHEDULES

The following painting schedules identify the surfaces to be painted and prescribe the paint to be used and the number of coats of paint to be applied. Contractor options are indicated by -----or----- between optional systems or coats.

EXTERIOR PAINTING SCHEDULE

<u>Surface</u>	<u>First Coat</u>	<u>Second Coat</u>	<u>Third Coat</u>
Ferrous metal unless otherwise specified	SSPC Paint 5	CID A-A-2962 Type I Grade C	CID A-A-2962 Type 1 Grade C

SECTION 10430

EXTERIOR SIGNAGE
11/00

1 GENERAL

1.1 REFERENCES

Exterior signage construction and materials shall meet the requirements specified in the 1997 North Dakota Department of Transportation Standard Specifications for Road and Bridge Construction (NDDOT Standard Specifications) Sections:.

- 612 Reinforcing Steel
- 704 Traffic Control
- 754 Highway Signs
- 802 Portland Cement Concrete
- 894 Highway Signs and Posts

1.2 MEASUREMENT AND PAYMENT

NDDOT Standard Specifications referenced above shall be followed for all construction, quality and testing procedures. The NDDOT Standard Specifications will not be followed when referencing to measurement, payment and deductions of the contract unit price. In addition, all testing will be the responsibility of the Contractor. Any reference in the NDDOT Standard Specifications to testing to be done by the Department shall be replaced with testing to be done by the Contractor..

1.3 SUBMITTALS

Government approval is required for submittals with a "GA" designation; submittals having an "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-04 Drawings

Drawings; FIO.

Drawings shall be submitted indicating existing signs that will be impacted by construction. Drawings shall indicate elevation of type of sign, details, method of mounting or anchoring, shape and thickness of material and details of construction. Plan shall include information indicating if existing signs will be reset or replaced.

SD-08 Statements

Product Data

The Contractor shall submit product information and certification that verifies that sign materials and installation meet the requirements specified in the NDDOT Standard Specifications.

Traffic Control Plan; GA.

Contractor shall submit a traffic control plan to the Contracting Officer seven (7) days prior to the beginning of each stage of construction. Traffic Control Plan will conform to standard plans and detour plans provided.

2 PRODUCTS

2.1 MATERIALS

All materials shall meet the requirements of the specified sections of the NDDOT Standard Specifications.

3 EXECUTION

3.1 GENERAL

Manufacturing, Testing, and constructing of signage shall meet the requirements of the NDDOT Standard Specifications.

Existing Signs impacted by construction shall be removed and replaced or reset to conform to existing conditions. Any existing signs that are damaged during construction shall be replaced.

SECTION 11280

WATER CONTROL GATES

11/00

1 GENERAL

1.1 REFERENCES

The publications listed below form a part of this specification to the extent referenced. The publications are referred to in the text by basic designation only.

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A 126	Gray Iron Castings for Valves Flanges, and Pipe Fittings.
ASTM A 276	Standard Specification for Stainless Steel bars and Shapes.
ASTM B 21	Naval Brass Rod, Bar and Shapes.
ASTM B 98	Copper-Silicon Alloy Rod, Bar and Shapes.
ASTM B 139	Phosphor Bronze Rod, Bar and Shapes
ASTM B 209	Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
ASTM B 584	Standard Specification for Copper Alloy Sand Castings for General Applications.

AMERICAN WATER WORKS ASSOCIATION (AWWA)

AWWA C 501	Cast-Iron Sluice Gates.
------------	-------------------------

NATIONAL ELECTRICAL MANUFACTURERS ASSOCIATION (NEMA)

NEMA 250	Enclosures for Electrical Equipment.
NEMA ICS 6	Enclosures for Industrial Control and System.

1.2 SUBMITTALS

Government approval is required for all submittals with a "GA" designation; submittals having a "FIO" designation are for information only. The following shall be submitted in accordance with SECTION 01330: SUBMITTAL PROCEDURES:

SD-04 Drawings

Detail Drawings; GA

Submit detail drawings.

SD-07 Schedules

Materials; FIO

Submit material orders, material lists, and material shipping bills.

SD-09 Reports

Tests, Inspections and Verifications; FIO

Submit certified material test reports with all material delivered to the site.

Acceptance Trial Operation and Test; FIO

Submit operation and test results before completion of the contract .

SD-18 Records

Materials Disposition; FIO

Submit system of identification which shows the disposition of specific lots of approved materials and fabricated items in the work before completion of the contract.

SD-19 Operation and Maintenance Manuals

Operation and Maintenance Manuals;FIO

Submit O&M Manuals for sluice and flap gates before completion of contract.

1.3 QUALIFICATION OF WELDERS AND WELDING OPERATORS

Qualification of welders and welding operators shall conform to the requirements of SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

1.4 DELIVERY, STORAGE, AND HANDLING

Delivery, handling, and storage of materials and fabricated items shall conform to the requirements specified in SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

1.5 WARRANTY

Provide warranty for a period of two years or the manufacturer's standard, whichever is more for defects in material and workmanship. Warranty includes all necessary costs for removal, repair, replacement, installation, parts and labor.

2 PRODUCTS

2.1 MATERIALS

Materials orders, material lists and material shipping bills shall conform with the requirements of SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.1.1 Metals

Iron castings, stainless steel, bronze, and other metal materials used for fabrication shall conform to the requirements as shown and as specified herein and in SECTION 05502: METALS: MISCELLANEOUS, STANDARD ARTICLES, SHOP FABRICATED ITEMS.

2.2 MANUFACTURED UNITS

Bolts, nuts, washers, screws and other manufactured units shall conform with the requirements as shown and as specified and in SECTION 05502: METALS: MISCELLANEOUS, STANDARD ARTICLES, SHOP FABRICATED ITEMS.

2.3 FABRICATION

2.3.1 Detail Drawings

Detail drawings, including fabrication drawings, shop assembly drawings, delivery drawings, and field installation drawings, shall conform to the requirements specified and in SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.3.1.1 Fabrication Drawings

Fabrication drawings shall show complete details of materials, tolerances, connections, and proposed welding sequences which clearly differentiate shop welds and field welds.

2.3.1.2 Shop Assembly Drawings

Shop assembly drawings shall provide details for connecting the adjoining fabricated components in the shop to assure satisfactory field installation.

2.3.1.3 Delivery Drawings

Delivery drawings shall provide descriptions of methods of delivering components to the site, including details for supporting fabricated components during shipping to prevent distortion or other damages.

2.3.1.4 Field Installation Drawings

Field installation drawings shall provide a detailed description of the field installation procedures. The description shall include the location and method of support of installation and handling equipment; provisions to be taken to protect concrete and other work during installation; method of maintaining components in correct alignment; and methods for installing other appurtenant items.

2.3.2 Structural Fabrication

Structural fabrication shall conform to the requirements as shown and specified herein and in SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.3.2.1 Bolted Connections

Bolted connections shall conform with the requirements specified in SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.3.2.2 Machine Work

Machine work shall conform with the requirements specified in SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.3.2.3 Miscellaneous Provisions

Miscellaneous provisions for fabrication shall conform with the requirements specified herein and in SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.

2.3.3 Sluice Gate

Provide gate, stems, lifts and other appurtenances of size, type, material and construction shown on the contract drawings and specified.

2.3.3.1 Material:

- a. Seating faces: Bronze: ASTM B139.
- b. Seals: Provide resilient neoprene seals for flush bottom gates.
- c. Wedges: Bronze: ASTM B584 (CA 872).
- d. Thrust Nut, Operating Nut: Bronze: ASTM B584 (CA872).
- e. Anchor bolts, assembly bolts and nuts: Stainless steel: ASTM A276, Type 304
- f. Stems and stem couplings: Stainless steel: ASTM A276, Type 304.

2.3.3.2 Frame

The frame shall be of cast iron, one-piece construction with square or circular opening as indicated on the plans. The sluice gate frame shall be flat or flange back construction, conventional or self-contained as shown in the contract Drawings. Self contained sluice gates shall be provided with a cast iron or fabricated steel yoke member. All contact surfaces of the frame will be machined. The frame will have dovetailed grooves on the front face into which bronze seat facings shall be firmly secured and machined to a 63 micro-inch finish. A stainless steel stop bar with a resilient seal attached to it shall serve as the invert for gates with flush bottom closure. The back flange of the frame shall be machined to bolt directly to the machined face of a wall thimble. Frames shall have integrally cast pads to receive top wedge seats.

2.3.3.3 Slide

The sluice gate slide shall be of cast iron, one-piece construction with integrally cast vertical and horizontal ribs. The slide will have dovetailed grooves on the seating face into which bronze seat facings shall be firmly secured and machined to a 63 micro-inch finish. Wedged pads for side wedges and top wedges will be cast integrally on the disc to receive the adjustable bronze wedges. A heavily reinforced nut pocket shall be cast integrally on the vertical centerline and above the horizontal center and be of such shape to receive the square-backed bronze thrust nut.

2.3.3.4 Guides

The guides shall be cast iron, integrally cast with the frame, designed to withstand the total thrust due to the water pressure and the wedging action. The guides shall be machined their entire length to allow 1/16 inch clearance between the disc tongue and the guide groove. The guides shall be of such length as to retain and support at least one half of the slide in the full open position. Bronze wedge seats shall be securely attached to the guides.

2.3.3.5 Wall Thimble

Wall thimbles shall be type "F", as shown in the Contract Drawings. The overall wall thimble length shall be equal to the concrete wall thickness, unless otherwise shown. Wall thimbles shall be internally braced during concrete placement. A center ring or water stop will be cast around the periphery of the thimble. The front flange shall be machined and have tapped holes for the sluice gate attaching studs. The vertical centerline shall be shown by permanent marks at the top and bottom of the machined face with the word "top" marked near the top center of the thimble opening. Wall thimbles will be provided with holes in the invert to allow satisfactory concrete placement beneath the thimble; space holes 24 IN OC (maximum) around bottom half of circular thimbles, and 24 IN OC (maximum) across bottom of rectangular thimbles. All thimbles shall be square-flange and square- or round-opening as applicable. A permanent gasket of uniform thickness of suitable mastic will be provided between the sluice gate and wall thimble.

2.3.3.6 Manual Operators

The operator shall be as selected by the gate manufacturer so that the maximum effort to operate the gate does not exceed a 40 lb. pull on the crank or handwheel when the gate is subjected to its maximum operating head. The operator will be enclosed in a cast iron or aluminum housing with roller bearings above and below the flange of the bronze operating nut. The pedestal shall be designed to position the centerline of the handwheel or crank approximately 36 inches above the operating floor.

2.3.3.7. Portable Operator

Provide hydraulic type portable operator mounted on light weight frame with wheels for easy maneuvering. The hydraulic pump drive shall be a four cycle gasoline engine.

2.3.3.8 Stem

The operating stem shall be of type 304 stainless steel. The stem shall be of a size to safely withstand without buckling or permanent distortion the stresses induced by normal operating forces. The stem shall have a minimum diameter of 1-1/2 inch and shall be designed to transmit in compression at least 2.5 times the output of the manual operator with a 80 lb. effort. The threaded portion of the stem shall have machine cut or rolled acme threads.

2.3.3.9 Accessories

A threaded stop collar shall be provided on all stems with manual operators to limit downward travel of the slide. Stop collars shall be field set by the installing contractor. Clear lexan or butyrate plastic stem covers shall be provided with mylar travel indicator strips for field mounting by the installing contractor.

2.3.3.10 Stem Guides

Stem guides shall be stainless steel or cast iron, bronze bushed, mounted on a stainless steel or cast iron bracket. The stem guides shall be adjustable in two directions and will be spaced at sufficient intervals to adequately support the operating stem. Stem guides shall be provided so that the length/radius of gyration ratio of the stem is not greater than 200.

2.3.3.11 Painting

All non-machined surfaces of the sluice gate shall be sandblasted to base metal, dry and free of grease, then shop coated with a high-grade epoxy primer. The area of the wall thimble that is in contact with concrete will remain uncoated. The inside of the wall thimble shall be blasted and coated as previously described.

2.3.4 Flap Gates

General: Provide flap gates with flange frame for mounting on concrete. Provide lubrication fitting for all hinges. Circular opening for gravity flow.

2.3.4.1 Materials

- a. Frame and cover or flap Cast-iron, ASTM A126, Class B.
- b. Seats: Bronze, ASTM B21.
- c. Hinge arms: High strength malleable iron or high tensile bronze.
- d. Hinge pins: Stainless steel, Type 304 or silicon bronze, ASTM B98.
- e. Anchor bolts: Stainless steel, Type 304.

2.4 TESTS, INSPECTIONS, AND VERIFICATIONS

Tests, inspections, and verifications for materials and fabricated items shall conform to the requirements specified and in SECTION 05055: METALWORK FABRICATION,, MACHINE WORK, AND MISCELLANEOUS PROVISIONS.

3 EXECUTION

3.1 INSTALLATION

Installation shall conform with the requirements specified and in SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS. Gate

and appurtenant items shall be assembled for installation in strict accordance with the contract drawings, approved installation drawings, and shop match-markings. Bearing surfaces requiring lubrication shall be thoroughly cleaned and lubricated with an approved lubricant before assembly and installation. Components to be field welded shall be in correct alignment before welding is commenced.

3.1.1 Embedded Metals

Frames, bases, and other embedded metal items shall be accurately installed to the alignment and grade required to ensure accurate fitting and matching of components. Shims, jackbolts, or other supports required to align and hold components rigidly in place until embedment concrete has attained the specified strength shall be provided. Anchors shall be installed as shown. Embedded metals shall be given a primer coat of the required paint on all surfaces prior to installation in concrete forms. Items requiring two concrete pours for installation shall be attached to the embedded anchors after the initial pour, adjusted to the proper alignment, and concreted in place with the second pour.

3.1.2 Gate Frame and Guides

Gate frame and guides shall be connected to embedded anchors, aligned, and rigidly blocked in place prior to the placement of second-pour concrete. The sealing surfaces of the slide gate frame seal bars shall serve as the reference plane for the installation alignment. Gate frame and guide shall be tested for proper alignment and clearance prior to being embedded in concrete by lowering the gate leaf through the full operating range.

3.1.3 Concrete and Non-Shrink Grout Placement

The embedment of the gate frame and other components in concrete shall be performed in an approved manner to fill all voids, secure anchorage, prevent seepage, and provide uniform finish surfaces. After embedment concrete has cured for at least 7 days, any voids around embedded components shall be filled with non-shrink grout around the components.

3.1.4 Painting

Exposed parts of the gate and appurtenance components, except machined surfaces, corrosion-resistant surfaces, surfaces of anchorages embedded in concrete, and other specified surfaces, shall be painted as specified in SECTION 09900: PAINTING: GENERAL.

3.2 SCHEDULE

<u>Station</u>	<u>Type</u>	<u>Size</u>	<u>Actuator</u>
9+20 L	Flap	24"	----
17+00 L	Flap	48"	----
17+00 R	Flap	27"	----
37+40 R	Flap	60"	----
37+40 R	Sluice	60"	Manual
38+25 L	Flap	48"	----
81+60 L	Flap	36"	----
81+60 R	Flap	60"	----

81+60 R	Sluice	60"	Manual
84+60 R	Flap	2-60"	----
84+60 R	Sluice	2-60"	Manual
84+75 L	Flap	42"	----
123+50 L	Flap	2-48"	----
176+00 L	Flap	33"	----
186+00 L	Flap	48"	----
197+00 R	Flap	2-60"	----
197+00 R	Sluice	2-60"	Manual
201+60 R	Flap	48"	----
332+50 L	Flap	36"	----
334+00 L	Flap	36"	----
385+90 R	Sluice	2-60" x 60"	Hydraulic
446+90 L	Flap	30"	----
474+00 L	Flap	48"	----

Notes:

1. Minimum design seating head shall be 15 feet for all gates.
2. All gates have round opening ("size") except at Station 385+90, which has two square-opening gates.

3.3 ACCEPTANCE TRIAL OPERATION AND TEST

After the gate assembly has been installed, including operating machinery, the Contracting Officer will examine the complete system for final acceptance. Operation and test results shall be furnished to the Contracting Officer. The assembly will be examined first to determine whether or not the workmanship conforms to the specification requirements. The Contractor shall operate the gate throughout its full operating range a sufficient number of times to demonstrate proper operation. The workmanship in the fabrication and installation of the gate assembly shall be such that the gate leaf shall form a watertight barrier when lowered to the seated position. Adjustments shall be made to the operation and control apparatus until all components function as required. Appurtenances will be inspected to assure proper operation. Required repairs or replacements to correct defects, as determined by the Contracting Officer, shall be made at no additional cost to the Government. The trial operation and testing shall be repeated after defects are corrected.

3.4 PROTECTION OF FINISHED WORK

Protection of finished work shall conform to the requirements of SECTION 05055: METALWORK FABRICATION, MACHINE WORK, MISCELLANEOUS PROVISIONS.